THE IRON AGE

THURSDAY, JULY 25, 1901.

Machinery at the Pan-American Exposition—II.

The Norton Emery Wheel Company.

An exhibit unique in every feature has been prepared by the Norton Emery Wheel Company of Worcester, Mass. Their booth consists of a wooden cornice, supported by six massive emery columns. These columns are built of regular solid emery wheels, there being about one ton weight of wheels in each. The cornice itself is ornamented with emery and corundum wheels, the wheels for gumming saws, optical work and other kinds of glass grinding.

The Walker universal tool and cutter grinder is exhibited in operation and with it a large assortment of samples showing the quality of the work performed by this machine. There is also in the exhibit a full line of the company's regular standard grinders. There are many sizes and the spindles of these machines vary in diameter from ½ to 2½ inches. The Bath machine indicator is shown so as to demonstrate its use to the best advantage. Among the special features of the exhibit is the largest emery wheel ever made by the company, it being 60 inches in diameter by 10 inches thick, and its

Fig. 5.—Norton Emery Wheel Company's Exhibit.

different colors of which are intended to harmonize with the ground of the wood work. Small columns placed in front serve to break the length of the main columns.

There are six show cases on the front line. The one on the right, facing the exhibit, contains emery and corundum wheels, showing the great variety of shapes, grades and grains that are called for. The left hand case contains India oil stones, and rubbing and sharpening stones, which are used for a great variety of purposes. The Indias especially make a very beautiful exhibit. The case in front contains wheels such as are used on the Brown & Sharpe grinding machines, the Landis, the Walker universal tool and cutter grinder, and the Norton grinding machine. There are also samples of cylindrical grinding done on the last mentioned machine. The show cases on the rear line of the exhibit all contain special weight being 2197 pounds. This is probably the largest wheel ever made.

Detrick & Harvey Machine Company.

The machines illustrated in Figs. 6 to 9 inclusive are shown by the Detrick & Harvey Machine Company of Baltimore. For many years this company have given their special attention to the development and improvement of the open side planer. These machines will take under the beam a piece of work slightly larger than the dimensions given for any particular machine, and will square down the outside of the work to the planing width given, and actually planing several inches wider on a straight surface when the beam head is set at an angle. The bed has great depth and ample metal, the length being slightly more than one-half longer than the table.

The cross girths are close together, especially opposite to and for the length of the post. Oil pockets and brass lubricating rollers are arranged at suitable intervals to insure proper lubrication of the V's. The table is deep and rigid with broad V's, and has the specified planing length between the pockets. It has planed T slots and cored holes which are designed for the use of standard square head machine bolts. These holes are cored through, relieving the platen of chips, and facilitating cleaning. The table is also provided with projecting lips to keep chips and dirt from the V's.

The cross beam is a right angle casting having a vertical leg with a very long bearing on the front face of the post. The horizontal arm is supported at the back by a heavy brace bolted securely to it, this arrangement insuring stiffness and stability. The brace has a sliding bearing on the side and at the rear of the post, being rigidly clamped to it when set in position for planing. The beam and brace are raised and lowered by power. The post is of box section, well and heavily proportioned, and is guaranteed to be amply strong to overcome all strain. The post is tongue and grooved to the bed, and securely bolted to it, having a bearing on it greater than the amount of overhang of the beam.

The driving of the mechanism is the spiral planer motion, which for power, simplicity, durability, and smooth running qualities is familiar to the mechanical world. The pulley shaft is parallel to the bed of the planer. The table is returned without jar or back lash at from 3 to 4 to 1, depending upon the size of the planer. The belt shifters transfer one belt at a time, thus obviating the noise of belts. The reversing lever is arranged to allow the table to be run back so that the work can be examined without loosening the dog, and can be operated from either side of the tool.

The head on the cross beam has independent automatic feeds in all directions, and the head on the vertical slide has an automatic vertical feed. All operations can be readily and conveniently controlled. The side head has its bearing on the right angle beam casting, and not on the post, giving it a separate and adjustable bearing, which absolutely insures its planing at right angles with the main head at all times. An extra head with independent screw can be furnished for the beam, if desired. The feed mechanism is simple in construction, effective and positive in practice, and consumes power only when feeding.

A supplemental rolling table, placed in front of the machine, is furnished when desired. This table moves simultaneously with the platen, and is very useful for the outer support of wide and heavy work, and of long pieces when planing off the ends. It can be adjusted to and from the table on channel beams, which are planed. These planers are driven either by power or electric motor.

The planer shown in Fig. 6 planes 36 x 36 inches, and 8, 10, 12, 14 and 16 feet long.

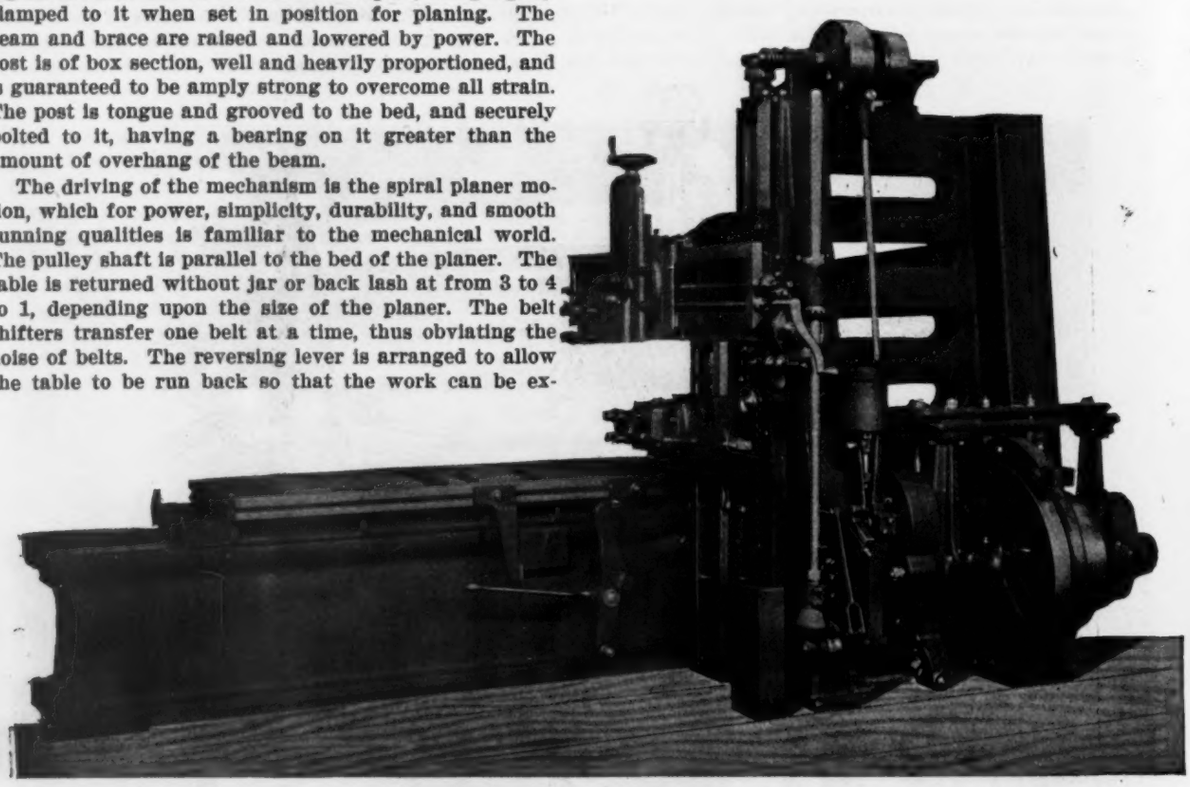

Fig. 6.—Detrick & Harvey 36 x 36 Open Side Planer.

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Detrick & Harvey Universal Drilling, Milling and Boring Machine.

This machine, Fig. 7, will drill at any angle. It consists of a bed plate on the main portion of which is fitted a column made very stiff and rigid, two sides being straight, while the others taper to a broad base, which is gibbed down to a sliding fit on a wide scraped bearing. This column has a traverse of 40 inches or more if desired. It is usually arranged for drilling and boring only, the column having a hand and quick power movement, but automatic feeds can be attached for milling, if required. On this column is a saddle having a long bearing scraped to a sliding fit, carrying a spindle 3 11-16 inches in diameter, provided with a geared feed motion of 24 inches, and the end arranged for a No. 5 Morse taper. The saddle is fully counterbalanced, and is raised and lowered by hand, having 40-inch vertical movement. The spindle is moved by hand, either slowly for feeding or rapidly by spoke wheel for quick adjustment, but in addition the spindle has three power feeds. Back gearing is applied on the saddle at the front end of the driving sleeve, and provision is made for taking up any lost motion in the spindle. Automatic feeds can be attached for milling, if desired.

To the other portion of the bed plate is fitted the universal table, which is very strong and capable of handling work of several tons. This table has a sliding movement of 30 inches to and from the column, being operated by a rack and pinion. The top, which is 48 x 36 inches, has a pivoted movement from a horizontal to a vertical plane, and can be rigidly clamped at any angle. It also has a rotary movement, which makes it possible to drill holes in any part of a hemisphere or in five sides of a cube without rechucking the work. When extra large work is to be machined the table can be lifted off the bed plate. When this machine is to be used for boring, an outside support for the bar is furnished, which can be used either with or without the universal table.

The 40 x 40 inch machine weighs about 14,000

pounds, occupies a floor space 13 feet 4 inches by 8 feet 9 inches and is 9 feet high.

The Adams Bolt Threader.

The Detrick & Harvey Company also exhibit the Adams single bolt threader shown in Fig. 8. This machine is provided with eleven sets of dies, ½, ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1⅜, 1½, 1¾ and 2 inch, cutting V., U. S., or Whitworth standard. Corresponding nut taps are also furnished. The head is so designed that, while the dies are fixed, they are removable and adjustable, and when adjusted they are as rigid as a solid die. The split head releases the bolt when the thread is cut, permitting the escape of the chips, and as the dies are rigid and stationary whenever adjusted, neither they nor the movable working parts of the head are interfered with or worn by the action of the chips. They are practically solid die machines, with the advantage of releasing the bolt after threading. The head is comprised of only four main parts; it is made of steel, the wearing parts being of hardened tool steel. There is no possibility of producing taper threads unless the dies are intentionally set for that purpose, and no variations in the diameters of bolts can occur.

Detrick & Harvey Nut Facer.

The nut facer, Fig. 9, consists of the usual base, carriage and rotating spindle, but with some very important improvements. The nuts are run on and off a mandrel by the machine, and it is impossible to use either hammer or wrench on them, which obviates the possibility of marring the nuts and springing the mandrel. The three tools usual on this type of machine are replaced by one improved cutter head, so arranged that the single forward motion of the carriage does the entire facing, including chamfering (or relieving) and removing the first thread. The cutters in this head are shaped cutters which may be ground on the face without altering the shape of the cut. The machine is supplied with a rotary oil pump, which throws a strong stream of lubricant on the work, permitting a rapid cutting speed to be used.

The No. 1 machine has a range of 1¼-inch nuts and under, the No. 2 a range of 2 inches and under.

The Paris Berlin Motor Car Race.

The London *Engineer* discusses the great Paris-Berlin motor car race in the following interesting manner:

The great race of motor vehicles from Paris to Berlin has proved a remarkably fine advertisement for the new means of locomotion and also for the manufacturers whose carriages showed up prominently in the contest, and to this extent it may be regarded as having entirely accomplished what was expected of it by the promoters. To say, however, that the race was nothing more than an advertisement in the usual sense of the word would detract somewhat from the importance of the manifestation. Manufacturers are not so enamored of racing for its own sake as lightly to throw away sums varying from £10,000 to £20,000, as certain of them have been doing, for the benefit of the few orders it may bring them. If they make such sacrifices it must be for some other motive, and this will be found in the support they have given to the automobile clubs in the work of propaganda carried out by means of speed contests. The enormous expense of organizing races does not bring in immediate results at all proportionate to the outlay, and this should be taken into account when considering the economical aspect of motor-car racing. In the earlier days of the industry there is no doubt that these races did a vast amount of good in enabling manufacturers to test their vehicles under the severest conditions possible, and at the same time stimulate them to a keen rivalry that has resulted in improvements to motor carriages that would probably never have been attained but for these speed contests. Having done so much, it may be questioned whether racing can do any more. In a previous article, when dealing with the Paris-Bordeaux race, we pointed out that these contests, which at first did useful work in enabling manufacturers to discover and remedy defects in their mechanism, have merely had the result of turning their energies in one direction. In their researches for a purely speed vehicle they have evolved a distinct type, which is as far removed from the requirements of the average user as the express locomotive is

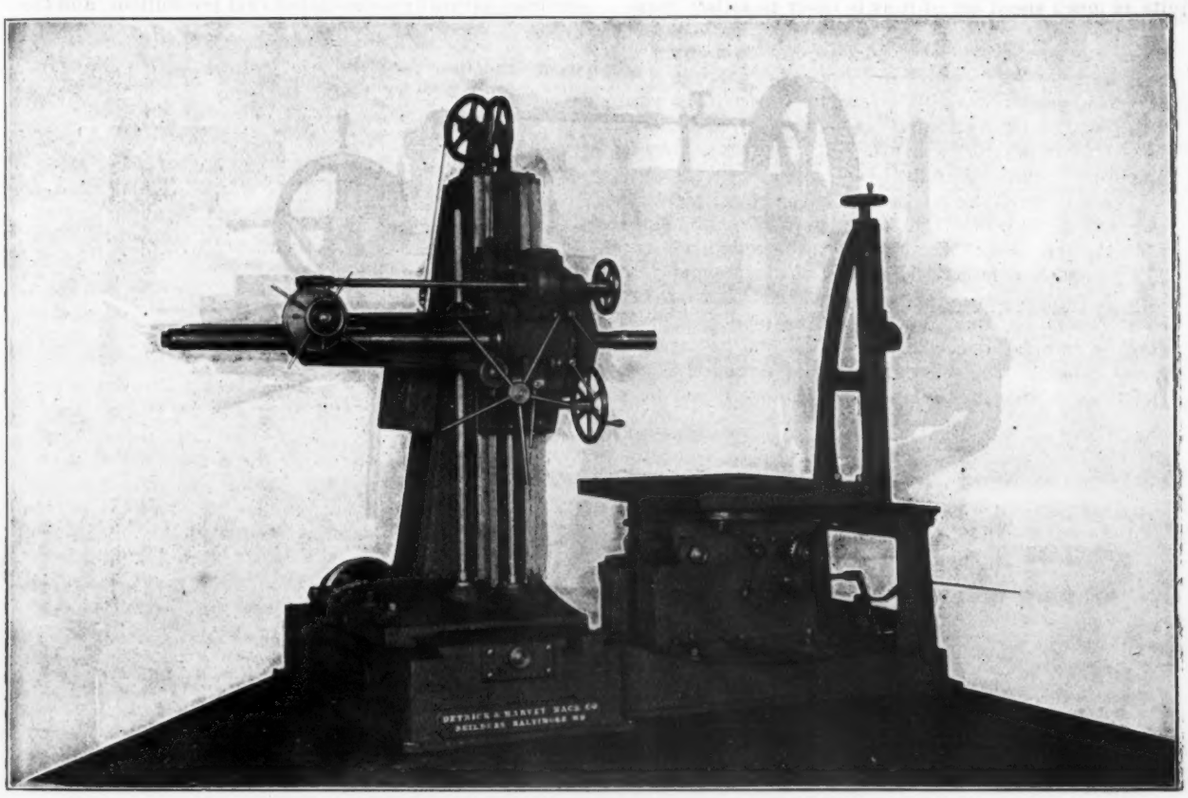

Fig. 7.—Detrick & Harvey Horizontal Drilling, Boring and Milling Machine.

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from the traction engine. The modern French racing vehicle is a magnificent piece of mechanism, not so much from the point of view of actual construction, though the workmanship is usually of an extremely high order, but more especially from the ingenious way in which makers have overcome the many difficulties which have been created in this striving after speed. The fact that from Paris to Bordeaux the winning vehicle covered the distance at an average speed of 53¼ miles an hour, while the same vehicle ran from Paris to Berlin, a distance of 744 miles, at an average of 46½ miles an hour, under conditions of stress and shock to which probably no other mechanism is subjected, necessarily forces one's admiration for a class of machinery which, five years ago, was still in a somewhat rudimentary stage.

The Racing Car.

The racing car has now undoubtedly reached its highest practical stage of development. Makers have got quite as much speed out of it as is likely to satisfy them, and the more they strive to build faster vehicles the more they deviate from a type of commercial carriage which must always form the basis of the industry. These racing vehicles are much too costly to find a ready sale. They are dangerous in the hands of ordinary owners, and makers even will not usually supply them except to customers who are known to be particularly expert in the driving of motor cars. The racing vehicle has therefore accomplished its work in providing manufacturers with valuable experience, and teaching them in what direction they can profitably devote their energies in the future, and as the maximum practical speed has been attained there is nothing more to be gained in building heavy, powerful and costly cars. Nevertheless, the Paris-Berlin race had some justification from the point of view of technical progress on account of the curiosity that was manifested as to the performances of the new types of carriages that have been turned out this year, and more especially as providing a comparison between steam and "mixed" cars and the carriages propelled by internal combustion engines. The event was expected to throw some interesting light upon recent developments which were believed to have considerable consequences for the future of the industry. And besides these technical matters there was the rivalry between the French and German vehicles. The success at Nice last spring of the Mercedes cars, constructed by the Daimler Motor Company of Cannstatt, showed the French that they must make desperate efforts to recover their prestige, and no better opportunity presented itself of doing this than by meeting them on German soil. The primary object of the race, however, was purely one of propaganda. Though the motor car industry has reached a high state of development in France, it is still considerably restricted in other parts of the Continent; and apart from a few centers where factories have been established, the motor car is scarcely known except by name. It was the idea of the automobile clubs of France and Germany to awaken a general interest in the movement by giving an impressive demonstration of what the vehicles could do in the way of speed. The sending of heavy, powerful vehicles at railway speeds along the highways of three countries naturally necessitated vast precautions, and the organization along 750 miles of road was one of the biggest things ever done in the way of police and military control for a purely pacific demonstration.

New Types.

Out of the 170 vehicles entered for the race 110 started from Champigny, near Paris, on Thursday morning, and these comprised 40 large cars, 48 light carriages, 12 voiturettes and 10 motor cycles. Great expectations had been held out as to the performances of the three "mixed" cars, which had been constructed specially for the race at Liège, but they were apparently not ready in time to be present at the start. These vehicles are propelled by an internal combustion engine of smaller power than is usually fitted to racing cars, and in the place of a fly wheel the motor shaft carries a dynamo, which serves to charge a battery of accumulators when the full power of the motor is not being employed for driving the vehicle. Thus when the motor is not running on a full load the energy is stored in the battery, and when extra power is needed the electrical energy comes to the aid of the motor. If the system be not condemned by its complication, it can obviously only prove satisfac-

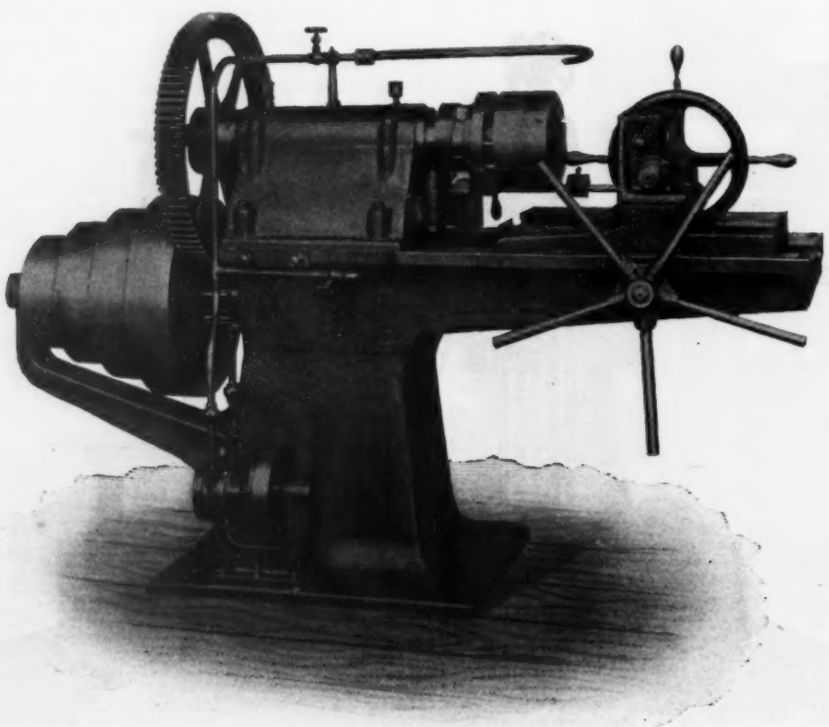

Fig. 8.—Adams 2-Inch Single Bolt Threader.

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tory in hilly districts, and it is difficult to see how the makers can establish their claim that the combination of the internal combustion engine and the electric motor will allow of phenomenal speeds, when it is evident that the small battery would be speedily discharged without any hope of its being recharged while the vehicle is constantly propelled at full speed. It was also expected that steam would show up prominently, as the Gardner-Serpollet Company had built vehicles for this event with a new type of condenser, which, they claimed, would enable the car to run nearly 300 miles without filling the water tank, and after the remarkable speeds attained by these vehicles at Nice in the spring it seemed quite feasible that the steam engine would be able to hold its own with the petrol motor if the steam could be condensed sufficiently to allow of the car running long distances without stopping. Unfortunately, the vehicle started in an unfinished state, and M. Serpollet spent most of his time on the road in carrying out repairs. The race, therefore, resolved itself into a duel between the leading makers of petrol vehicles, of whom Panhard and Levassor sent 22 and the Société Mors half a dozen. The only English built car was a 50 horse-power Napier, which recently did some very fast private trials in France, and covered a stretch of 5 miles at the rate of 67 miles an hour. The vehicle, however, gave a lot of trouble on the first day, and when at Sedan Mr. Edge found that he was hopelessly out of the race he withdrew.

Speed and Its Dangers.

The speeds attained on the French roads by the 50 horse-power Mors, driven by Fournier, the same which won the Paris-Bordeaux race, and the 60 horse-power Mors of Gilles Hourgières, were simply terrific; and in the Forest of Rheims, where the roads are absolutely straight and level, the kilometers were timed unofficially, and they were said to work out something like 75 and 70 miles an hour respectively. We do not think that there can be much exaggeration about these figures, for on approaching Aix-la-Chapelle we saw Fournier driving at a speed which was positively sensational. Only once have we seen anything like it, and that was on the occasion of the record ride over a 2-km. course with the electric torpedo shaped vehicle La Jamais Contente. Fournier dropped down a hill ½ mile in length in a few seconds, and, nearing the bottom, suddenly stopped without any appreciable slowing down. There was evidently something wrong with the vehicle, and when, after a lapse of less than half a minute, it started again, it got almost instantly into its full speed, and rushed up the opposite hill at such a rate that the eye could take in no detail of either the car or the rider. However much one may object to excessive speeds of motor cars, and argue the inutility of manufacturing this type of racing vehicle, it is impossible not to experience a profound admiration for the work of motor car engineers who have been able to get so much out of the internal combustion engine and accomplish on the road what has rarely been attempted even on the railway. And still more remarkable is the skill and nerve of the drivers, who know as well as the onlookers that they are constantly running into danger. Not the least of these sources of danger are the vast clouds of dust that rise up on the German roads after the passage of each vehicle. Even the touring car leaves in its wake a cloud of dust that obscures everything for several minutes; but when a racing vehicle passes like a tornado, it literally sweeps up the dust, and a car following close behind finds itself in constant peril. In Germany, where a motor car race is something new, and speeds like those attained by the French vehicles had been undreamt of, the spectators were entirely ignorant of the danger, and after each car had passed they closed up behind in the dust quite oblivious of the fact that if a vehicle were behind it would have been impossible to avoid a terrible accident. It is for this reason that the German organizers were extremely nervous under such a responsibility, and the police and military had a heavy task in keeping the roads clear. The dust was chiefly the cause of a fatal accident at Rheims, when a boy ran out behind a vehicle and was not seen by the driver of a car which followed until it was too late to save him. On approaching Berlin, M. Degrais, the driver of a German Mercedes vehicle, who

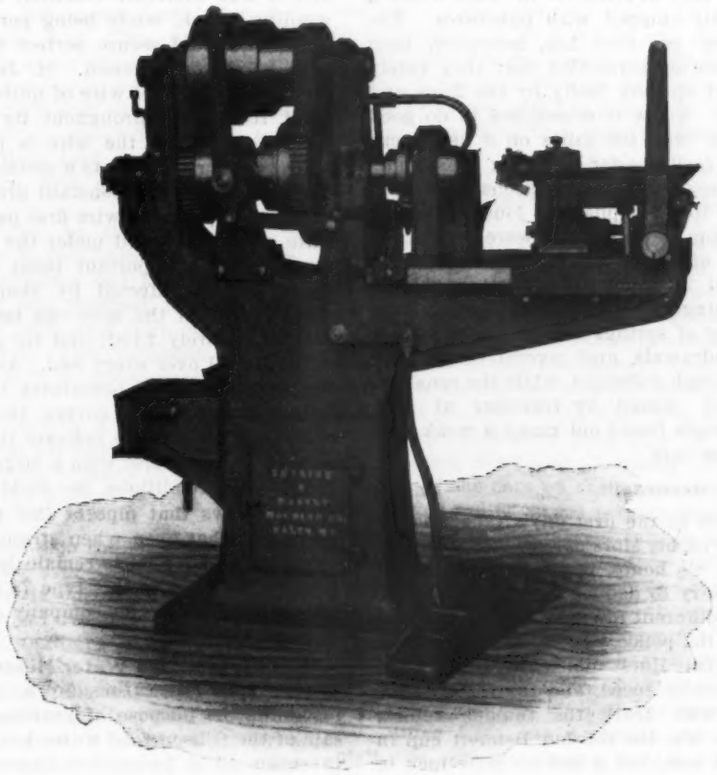

Fig. 9.—Detrick & Harvey No. 1 Nut Facer.

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was accompanied by an Austrian sportsman, Count Schwiter, was in the wake of another car, and could consequently see nothing for the dust. The leading car took a sharp turning, but the German vehicle continued straight ahead and crashed with terrific force into a tree. The two occupants were thrown out, Count Schwiter having his arms and legs broken in several places and sustaining a bad wound in the head, while M. Degrais happily escaped with a few bruises.

Break Downs and Repairs.

In a race of this description it is only natural that there should be a heavy proportion among the vehicles of failures to get over the course, and the liability to accident is so great that all the firms enter several vehicles in the hope that one or two will have the luck to get through without losing time on account of tire or mechanical troubles. The chief trouble is with the tires; but the mechanics who accompany the vehicles are so expert that they can usually change a cover in a quarter of an hour, and as the tire firms have supplies ready all along the road, the loss of time is reduced to a minimum, though it is obviously very appreciable in cases where a competitor is frequently stopped with punctures. The manufacture of motor car tires has, moreover, been brought to such a state of perfection that they rarely burst, but they are cut up very badly by the flints and asperities of the road. A tire is considered to do good service if it lasts more than 100 miles on a heavy car in a race. With these facilities for replacing tires, punctures can hardly be regarded as a reasonable excuse for the failures of cars to accomplish the journey, and of the 110 that started from Paris only 77 were dispatched from Aix-la-Chapelle, of which some had arrived the same morning, so that 22 competitors were unable to cover the first day's stage of 283 miles. The gripping of motors and breaking of springs seem to have been a prolific source of withdrawals, and several competitors damaged their cars through collisions, while the considerable strains and jolting caused by traveling at high speeds on indifferent roads found out many a weak spot in the mechanism of the cars.

Records.

The best performance in the first day's race was accomplished by Fournier on his Mors car, when he covered the 283 miles in about 8½ hours, but to secure the net racing time it is necessary to deduct the times occupied in passing through the different towns, when the vehicles had to be preceded by the police. From Aix-la-Chapelle to Hanover the powerful Mors vehicles again showed their superiority in point of speed, and the fastest time was done by Antony, who drove the famous vehicle which was expected to win the Gordon Bennett cup in the recent international race, but it had no more luck in the Paris-Berlin than in the Paris-Bordeaux contest, for while doing a remarkable performance by covering the 276½ miles between Aix-la-Chapelle and Hanover in the net racing time of 5 hours 6 minutes, it was unable to continue to Berlin the following day owing to mechanical derangements. From Hanover to Berlin the distance is only about 185 miles, but the shortness of the route is made up for by the indifferent state of the roads, and of the 60 vehicles that started from Hanover not more than 45 finished the end of the journey in sufficient time to warrant their being included in the classification. In the category of heavy vehicles 25 finished, and the winner was Fournier, whose net time for the 744 miles was 16 hours 6 minutes, or very nearly 47 miles an hour, and then followed three Panhard cars, which accomplished the distance in 17 hours, followed by the Mors, driven by Gilles Hourgières, in 19 hours 42 minutes, and five other Panhards in times varying from 19 hours to 21 hours. The Mercedes vehicle, belonging to Baron Henri de Rothschild, upon which the Germans based great hopes, occupied 22½ hours in covering the distance from Paris to Berlin. In the light carriage class an excellent performance was accomplished by a Panhard vehicle in 19 hours 33 minutes, but this was eclipsed by a Renault voiturette, whose time was 19 hours 16 minutes, and by a De Dion motor tricycle, ridden by Osmont, who went from Paris to Berlin in 19 hours, or at an average speed of over 39 miles an hour. It will thus be seen that as a demonstration of speed the race has been an unqualified success, and in other respects it has been justified in the sense that it has shown the inutility of continuing to organize races when they have taught all that can be learned. What these lessons have been, and what effect the Paris-Berlin race will have upon the future of the motor car industry in France and Germany, will be dealt with in other articles.

Wire Wound Cast Iron Pipe.—M. Jacquemart, the managing director of the Société Metallurgique d'Aubrives et Villerupt, France, has introduced the system of winding steel wire, under pressure, round the extremities of the pipe and in grooves cast in the body of the pipe. The idea of shrinking steel bands onto cast iron cylinders is very ancient, but the problem was to find some method which would cause the bands to follow exactly the shape of the parts to be enveloped and exert an even pressure throughout. This is accomplished by the method of winding above referred to. In the manufacture of pipe all complicated machinery must be rejected, and it was therefore essential to provide a method of winding which, while being perfectly simple in its application, would secure perfect uniformity of tension in each wire wound round. M. Jacquemart started from the fact that a steel wire of uniform diameter has a constant resistance throughout its length. He devised a method by which the wire is passed through a draw plate, which reduces it to a certain fixed diameter. Winding at an equal and constant pressure is effected by revolving the pipe, the wire first passing through the draw plate above described under the desired amount of tension. Another important point is the bedding of the ends. This is effected by shaping the edges of the grooves so that the wire can be bedded into them and thus be securely fixed; and for greater security molten tin is poured over every end. Asphalt is put on at high temperature, which penetrates the spaces between the coils and completely covers them. Experiments with these steel bound pipe indicate that with them it is possible to avoid a burst with a large main. Their behavior under such conditions as sudden and instantaneous shocks shows that pipe of this type is proof against a burst, and that even when strained to the point of fracture the damaged parts remain in their original position. A cast iron main of this type 78 inches in diameter has been laid by the water company of Paris.

The Gibson Feed Water Heater.—The Gibson Heater Company of Muscatine, Iowa, have recently incorporated for the purpose of pushing the manufacture and sale of the Gibson feed water heater. This device is the invention of a locomotive engineer, who developed it after five years of study and experiment. It is not only a heater, but also an intensifier and separator, and is adapted for use on all kinds of steam boilers. The intensifier is placed in the superheated portion of the boiler. Here the intense heat converts the pure water into steam, and the sediment formerly held in solution is driven forward into the separator over a fluted surface, where it is kept in rotary motion. The pure water passes into the separator and then into the boiler, while the sediment or impurities are thrown off through a sluice pipe at the bottom of the separator into the ash pit. The device is specially designed for use in districts having impure water, and is stated to have ample capacity for handling water containing from 10 to 30 per cent. of foreign matter. The company have issued an illustrated circular giving full details of the apparatus.

Among the improvements to be made in the near future in the sheet and tin plate plant of the Lalance & Grosjean Mfg. Company, at Harrisburg, Pa., is the installation of two electric traveling cranes and seven gas producers. Two additional tin mills and one stand of cold rolls will also be added.

The American Sheet Steel Company have dismantled the bar mill at their New Philadelphia, Ohio, plant, and will replace it by a sheet mill.

The New Battle Ship and Armored Cruisers.

WASHINGTON, D. C., July 23, 1901.—The Navy Department has practically completed the outline plans for the most powerful battle ship ever constructed for the United States Navy, surpassing in some respects the most formidable war ship of any power; and for two armored cruisers having a speed and steaming radius in excess of any war ship afloat. The plans for the battle ship referred to are being worked out for submission to Congress next December in accordance with the requirements of the last naval appropriation act, and Secretary Long has made public the majority report of the Naval Construction Board on the design of this vessel, a semiofficial synopsis of which is as follows:

The Battle Ship.

"The board has been unable to reach a unanimous agreement concerning the armament and its disposition, and now makes this preliminary report in order that progress may be made upon some definite designs. The plan of the battle ship as submitted is as follows: Length, 450 feet; beam, 76 feet; mean draft, 24 feet 6 inches; displacement, 15,560 tons. This displacement will give a ship considerably larger than anything in the present navy. The hull alone will weigh about 7000 tons, while the protective armor will be about 3700 tons. The total coal capacity will be about 2000 tons; total load displacement, 16,900; deep load draft of 26 feet 4 inches, and 19 knots speed, and an indicated horsepower of 20,000.

"The battery recommended by the majority is to consist of four 12-inch guns in two 10-inch armored turrets, 20 7-inch guns in casemates and 20 3-inch guns. Eight of the 7-inch guns are inclosed in individual armor, four on the upper deck and four on the gun deck, firing ahead and astern. The remaining 12 guns are located on the gun deck in a central casemate battery.

"The machinery is protected by a 10-inch armor belt tapering to 4 inches fore and aft beyond the machinery space, and the other protection consists of armor 7 and 6 inches thick, except on the 12-inch turrets, where it is 10 inches thick.

"The main differences between the majority and the minority of the board arose over the battery and its arrangement. The majority is opposed to the further use of superposed turrets, and recommends a uniform caliber of 7 inches for the auxiliary battery in preference to a mixed battery of 8-inch and 6-inch guns. In its comparison of the two plans, the majority makes the point that the use of the superposed turrets, favored by the minority, exposes four guns to disablement by a single shot, and by the mounting of the 12 6-inch guns in a single casemate renders them all liable to be placed out of action by a single large shell charged with high explosives.

"Attention is also called to what is claimed to be a very important advantage in the majority's plan in providing for 20 3-inch guns as against eight of that caliber provided for by the minority. A comparison of the results of the fire of ships that participated in the battle of Manila is submitted to show that guns not mounted in turrets gave greater rapidity than the turret guns of the "Olympia." It is claimed also that at the battle of Santiago there were only 30 hits made by the 319 projectiles fired from 8-inch guns. The majority argues in favor of the proposed 7-inch guns, which, it contends, far exceed the 8-inch guns in the extent of their range and the flatness of their trajectory. The majority holds that in providing for uniformity of character, simplicity of mounting and separation of guns it has presented a vessel more powerful than any yet built or projected by any power.

"A table is submitted to show that the 20 7-inch guns of the majority plan will throw 4125 pounds of metal a minute from each broadside, and that the 12 8-inch and 12 6-inch guns provided for by the minority, while capable of throwing 4500 pounds of metal a minute from one broadside, can throw only 3000 pounds of metal a minute from the other broadside. All the main battery guns except the 12-inch of the majority ship will throw 8250 pounds of metal in a minute, while all the main battery and guns except the 12-inch of the minority ship will throw 7800 pounds of metal in a minute."

Two Armored Cruisers.

The two new armored cruisers of exceptional speed and steaming radius have been designed to meet a necessity growing out of the acquisition of the Philippines, which has emphasized the importance of increasing the steaming radius of all new war ships so that they can make the trip from the Atlantic seaboard to the Pacific Coast or across the Pacific to the Philippines without stopping to recoal. It has always been a problem in ship construction to design vessels capable of high speed combined with long steaming radius at economical speed, but it is believed this problem has been worked out in the case of the new ships by a combination of three screws so arranged that they can be worked together or independently. The three screws when worked together are designed to develop at least 23 knots, while for making long voyages but a single screw would be used, giving a speed of 10 knots with the most economical consumption of coal. In an emergency the three screws can be put into use almost instantly, and the full power of the vessel speedily developed. The two projected armored cruisers have already been provided for by Congress and the plans will be placed upon the market as soon as they can be perfected. W. L. C.

The Pressed Steel Car Company.

On Saturday, July 20, the Pressed Steel Car Company of Pittsburgh shipped out over the Baltimore & Ohio Railroad a solid train of 32 cars, and the ultimate destination was Aquiles, in Southern Spain. The contents of the train were 70 large capacity pressed steel hopper ore cars for the Great Southern of Spain Railroad, not on their own wheels, but carefully packed in parts ready for shipment on the White Star line steamer "Georgic," which sails from New York July 23. An engineer from the Pressed Steel Car Company will superintend the erection of the cars on their arrival in Spain. The cars themselves are of 80,000 pounds capacity, and, when in service, will be the largest cars in use on any Spanish railroad. In some respects they differ materially from American cars. For instance, one car in ten is equipped with a shelter box for the brakeman or guard. These boxes are built of wood on the end of the car and are so constructed that the guard has an unobstructed view of the portion of the train under his care. Other minor portions of the car, such as the hand brake apparatus, &c., differ from the American standards, but in the main the cars are similar to cars already built for ore roads in this country by this company. The cars, when erected, will be 28 feet 6¾ inches long, 8 feet wide, with a hight from top of rail to top of body of 9 feet 9½ inches. The light weight is 29,180 pounds, and the ratio of paying load to total weight of car when loaded 75.09 per cent. The gauge of the Great Southern of Spain Railroad is considerably wider than our standard, being 5 feet 6 inches. This order for cars was secured by the Pressed Steel Car Company through its foreign agents, the Transportation Development Company, Incorporated, of London. This company also recently secured an order for 250 cars for use by the Government railroads of Australia, in New South Wales. This order has been increased within the last few days to 450 cars.

The American Steel & Wire Company have filed bills in equity in the United States Circuit Court at Pittsburgh against the Braddock Machine & Mfg. Company, the Sharon Steel Company, and the Union Steel Company, for the alleged infringement of patent No. 365,723, granted June 28, 1887, for improvements in barbed wire machines. This is the patent under which nearly all of the barbed wire manufacturers are licensees, and is owned and controlled by the American Steel & Wire Company.

The Bostwick Steel Lath Company, Niles, Ohio, have decreased their capital stock from $100,000 to $40,000.

The Edison Storage Battery at Buffalo.

The Edison storage battery reached the Pan-American Exposition on Saturday morning, July 20, in ample time to be inspected and passed upon by the jury of awards, which begins its work this week. The claims made for the battery are that it is new and novel, thoroughly original and of light weight comparatively. A claim is also put in for the possibility of rapidly charging and discharging the battery without injury. Its efficiency in low temperature and its long life are other points in its favor. As has been stated, the battery is a combination of iron, nickel and potash. It can be overcharged and fully discharged or reversed and charged in the opposite direction without injury. It can also be shortcircuited without injury, while to a lead battery this would mean ruination. Edison's battery weighs from 50 to 60 pounds to the horse-power, while the average weight of present batteries is from 160 to 180 pounds per horse-power. While it is not generally known, it is a fact that Edison has been using one of his new batteries for over a year in his laboratory, and as yet it shows not the least sign of deterioration, which is ample evidence that the battery has truly wonderful life. The battery is of superior workmanship, and its simplicity of construction is astonishing.

With the arrival of the Edison battery at the Pan-American the exposition has four types of battery on exhibition. In this connection it is interesting to note the progress made in this field since the World's Columbian Fair at Chicago in 1893. When the Chicago Fair was held little had been done in the storage battery industry, and little was shown. The years since then have been years of progress, and it is safe to say that to-day there are hundreds of thousands of horse-power held in storage ready to be released for useful purposes. This latest invention of Edison's gives good promise of being an important factor in a still greater development within the next few years, and its influence on several fields of industry is without doubt destined to be very marked. This is especially true of the automobile field, where with a lighter battery, such as the Edison battery, available, there are good prospects for an important improvement. Still another thing that the Edison battery promises to bring to this field is an ability to fully discharge, while it has from five to six times the efficiency in output of current for the same weight.

The placing of this new battery on the market in the opening years of the twentieth century gives intimation of a prospective development that will give greater courage to various industries. If in the commercial construction all the claims made for the battery are supported, and there is every reason to believe that they will be, it will be a most important addition to electrical appliances and apparatus. O. E. D.

Care in Filling Foreign Orders.

At the recent meeting of the National Association of Manufacturers F. E. Meyers of Ashland, Ohio, introduced the following interesting resolutions which were put on record:

Whereas, The people of the United States have been favored by Providence in the possession of raw material for production equal to the requirements of our country and largely for foreign countries whose confidence we enjoy to the extent of a strong inclination to buy our wares.

Resolved, That we, the National Association of Manufacturers, in convention assembled, recommend renewed care in the use of all materials and workmanship furnished foreign nations, the filling of orders exactly as received, the shipment of goods in proper condition so that we may continue to enjoy the confidence which they have reposed in us.

In support of this resolution I will say that I find in my travels abroad the buyers of our wares are inclined to give us cash in New York, or on bill of lading on receipt of goods, and unfortunately some manufacturers have not exercised the care that they should in the production of their goods and in the material used; and I think it is of the highest importance as manufacturers of the United States that we should exercise great care in these matters and retain the confidence of our foreign consumers, which will mean a great deal to the manufacturers of this country.

The Climax Gasoline Gas Generator.

The Climax gas machine, made by the Climax Nut, Lock & Mfg. Company of St. Louis, has been accepted by the local board of the Underwriters' Association and now has the same privileges in the city as gasoline engines. Heretofore this machine has been very much handicapped owing to the fact that the insurance companies would not permit its use, the objection being raised on account of the tank in which the gasoline was stored, no objection being made to the machine itself.

As will be noted from the accompanying illustrations

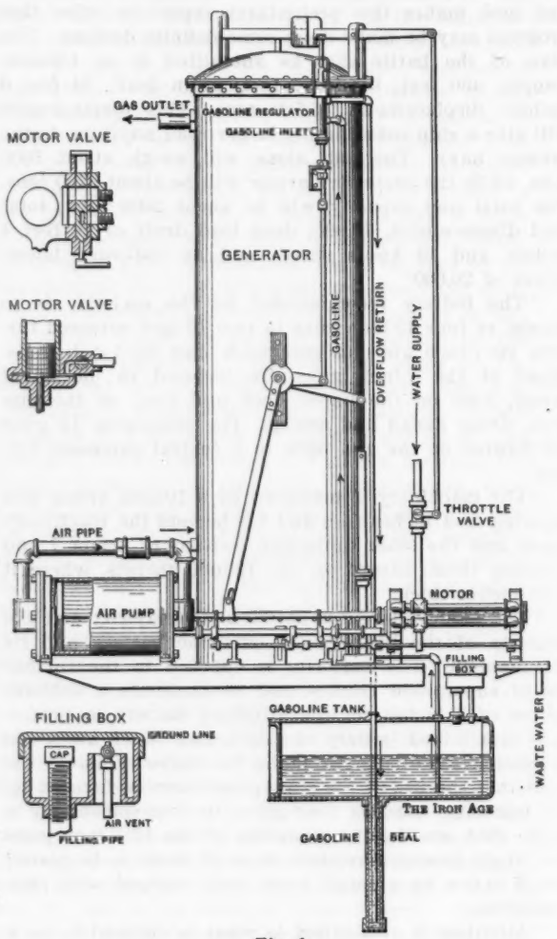


Fig. 1.

THE CLIMAX GASOLINE GAS GENERATOR.

the machine consists of two pumps, operated by either steam or water motor at ordinary city pressure. One pump takes gasoline from a reservoir and sprays it into the top of a large cylinder filled with excelsior, which serves as an absorbent material and furnishes an evaporating surface. The other pump forces air into the bottom of the cylinder and up through the mass of excelsior, which is just moistened with gasoline from the spray above. The air laden with gasoline vapor is forced to the top of the cylinder. The resultant gas is then piped off in the usual way. The pressure within the evaporating cylinder is automatically controlled and the relative amount of air and gasoline is also adjusted by varying the stroke of the gasoline pump. The arrangement is such that gas is only generated as it is used. Should a 200-light plant be in full operation and all at once 199 of the lamps be turned out the machine would stop until the one lamp left burning had consumed the excess of gas before it automatically started itself again.

Prof. F. S. Nipher of Washington University, St. Louis, has made a thorough test of this machine. In the course of his report he states: "The gasoline was continually pumped from the bottom of the reservoir and the evaporation was always complete. No liquid gasoline could ever be drawn off at the bottom of the evaporating cylinder. The gas was very uniform in quality and the operation of the entire plant was very satisfactory.

"In making the time tests one lamp only was used. This is a disadvantage which is against the plant, as losses from leakage would have been no greater if the plant had been worked to its full capacity of 250 lamps. The candle-power of the lamps was measured against a 16-candle incandescent lamp, which was from time to time standardized by means of English sperm candles. The voltage of this lamp could be very accurately set so that it gave a fixed and known candle-power. The

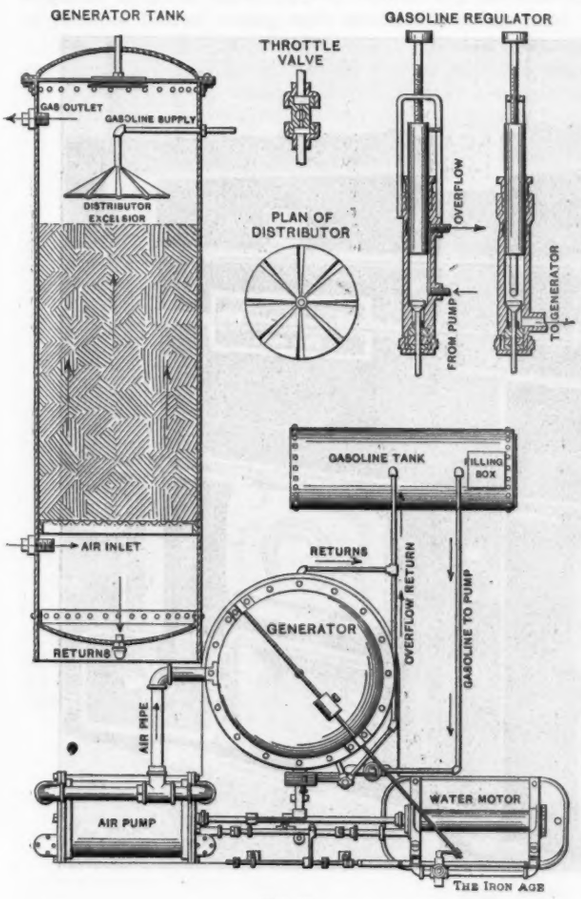


Fig. 2.

THE CLIMAX GASOLINE GAS MACHINE.

lamps were tried with various mantles, and the candle-power could easily be raised to 275 candles. This was done by increasing the pressure by means of the sliding weight on the lever controlling the water supply. The lamps were usually at 75 candles. By increasing the pressure the candle-power was run up to 385 candles.

"One run lasting for several hours with the plant at its full capacity was made. There was no appreciable lowering of the temperature of the cylinder in which the evaporation takes place. It is found that mantles used in the flame of this gas do not deteriorate with use, as they do with city gas. One mantle was used during the two months' test, and at the close it was in good condition. It was not injured by laying it upon its side upon the hand. It was much more elastic than mantles used in city gas. For this reason such mantles can be used in this gas under a much higher pressure than would be feasible with city gas. When burning a single 75-candle lamp it was found that 1 gallon of gasoline would last 55 hours.

"The gas from this machine was also examined for heating purposes and found to be very satisfactory. The combustion is complete and the heat required for cooking and for use in combustion furnaces can be easily attained."

The Cleaning of Blast Furnace Gas.

J. A. Lencauchez of Paris calls our attention to the fact that in October, 1899, he was called upon to design and erect an installation at the Micheville Steel Works for the purification of furnace gas capable of supplying one or two 300 horse-power Otto engines. This installation, which was built in the first half of 1900, consisted of a condenser composed of a series of pipes in which the gas was cooled and the heavier dust was gotten rid of. Through this condenser the gas was drawn by a high speed exhauster and was forced at the necessary pressure through the purifiers. One of these was held in reserve in order to provide for alternately cleaning one and the other. The gas then passed through the filters and was finally delivered to a small gas holder. Scrubbers were provided for, but as the result of the statements made at Sering at this time that no purification was necessary this part of the plant was not put up.

The first trials were made at Micheville in October, 1900, and it was noticed that in spite of the high resistance of the filters too large a quantity of dust reached the cylinders of the engine which finally were stopped.

Mr. Lencauchez having ascertained at this time that at Dudelange water was introduced from time to time into the exhauster in order to prevent its being clogged with dust, it occurred to him that a large quantity of water supplied to the exhauster might aid the purification, and on November 12 he wrote to the management at Micheville that it was necessary to introduce at each end of the blowers and into its center a powerful jet of water, and that this introduction of water might be regarded as a good method of purification. However, he did not believe that this would be adequate, because he recommended also the building of washers.

In going over this question more carefully he took a patent on January 1, 1901, for an improved purifying fan equipped with a water spray. Toward the end of February, 1901, trials were again begun at Micheville, and it was proven that this apparatus might be considered a most successful arrangement for getting rid of dust. The 300 horse-power engine has been running daily since the end of February, and the management at Micheville advise Mr. Lencauchez that the cleaning of the motor would not be necessary until after a long campaign. Similar results have been obtained at Differdange, but it must be noted that at this plant no provision was at first made for purification, and that therefore there was neither a gas holder nor a fan. The engines drew their supply of gas from receivers regulated hydraulically. The result was that ultimately a Theisen purifier was added. When it was learned what was being done at a neighboring plant the idea was suggested of converting a vertical blowing fan into an exhauster and pressure fan whose object was to aid the Theisen apparatus, since the latter was always out of repair.

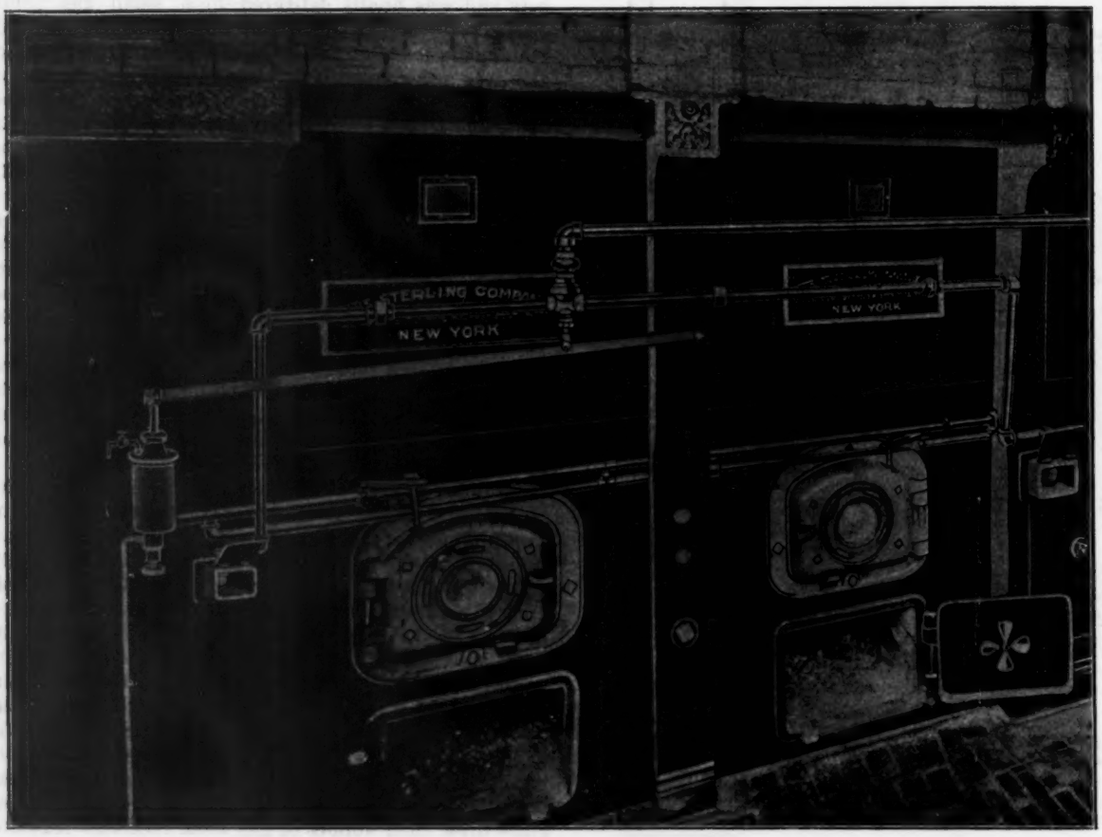
Mr. Lencauchez claims that the purification of furnace gas has been accomplished in France at least at the same time as in foreign countries, if not before them. The Lencauchez method is working well at the Micheville and Differdange plants since February, 1901.

The volume of business which was done in the New York Stock Exchange during the first six months of the current calendar year was enormous. The sales of listed stocks amounted to 151,890,696 shares, an increase of more than 100,000,000, as compared with the first half of 1900. For the entire fiscal year ended June 30, 1901, the sales of listed stocks reached the unprecedented total of 205,910,830 shares, or nearly 110,000,000 more than in the preceding year. Transactions in bonds during the first half of this year were almost equally remarkable, footing up to a par value of $542,430,200, being over $272,000,000 more than in the corresponding months of 1900. For the full fiscal year the sales of bonds reached a par value of $814,428,500, as compared with $522,529,100 for the preceding fiscal year.

The King Smoke Consumer.

The accompanying engravings show the smoke consumer designed by the King Engineering Company of Cleveland, applied to the Sterling boiler furnaces now in operation at the Brush Electric Works of that city. The device is intended to provide a sufficient and uniform supply of oxygen to all parts of the furnace and thereby obtain as perfect combustion in the rear of the fire box as at the front. Means are also provided for automatically regulating the supply in order to produce the best results. The duties of the fireman are simply to open and close the fire doors when it is necessary to provide fuel.

The device consists of two heavy cast iron retorts placed one on each side of the fire box. These are encased in the fire walls so as to be protected from danger of heat or breakage. These retorts, opening at the front of the fire box and in direct draft with the stack through the bridge wall, insure a constant supply of fresh air.



KING SMOKE CONSUMER APPLIED TO STERLING BOILERS.

When the fire door is opened the angle connections F open the valve E and thereby supply the cylinder D with steam. The piston of this cylinder, through the lever connection shown, actuates the valve C and admits steam to pipes extending through the retorts, as indicated in Fig. 2. The steam escapes into the fire box through the bell shaped openings A, which are shown enlarged in Fig. 4. Each of these outlets enters a short way into similarly shaped openings B, Figs. 2 and 3, from the retorts. The cool air entering through the retorts mingles with the dry steam jets and is distributed over every portion of the fire surface. As there is no concentration of heat at one point more than at another, the device can be adjusted, after the fire door has been closed, to operate any length of time to insure complete combustion.

By vote of the stockholders of both companies the lease of the East Boston Dry Dock Company's premises in East Boston to the Atlantic Works, for a term of ten years, has been ratified. The Dry Dock Company give up their office at 7 Exchange Place in the city proper, and have filled vacancies in their board of officers by choosing Albert H. Davenport as president and Alfred E. Cox of the Atlantic Works as treasurer. J. H. Whittaker has resigned as secretary, and his place will be filled by an Atlantic Works employee.

The Mackie Sheet Steel Tubing Works.

The Mackie Steel Tube Mfg. Company, Hammond, Ind., have built up within a very short period an important business in the manufacture of sheet steel tubing. It is hardly two years since they began to make brazed tubing on a small scale in Chicago. Their process proving a commercial as well as a mechanical success, they removed to Hammond last year, taking possession of a plant built for other purposes but adapted for the manufacture of their product. The property comprises 2 acres, which is well covered by buildings. At present the company are working into tubing over 25 tons of sheet steel daily, making a product ranging from ¼ inch to 2 inches in diameter. The tubing is made in any length, and of sheets of any thickness, from No. 12 to No. 30, as may be required. The company make both brazed and butted tubing, either plain or nickel plated, for umbrella manufacturers, bedstead makers, stove and range makers, implement manufacturers, &c.

The manufacture of brazed tubing of heavy gauge and in long lengths has been found an extremely difficult operation. In the halcyon days of the bicycle trade quite a number of establishments were successful in turning out short lengths of brazed tubing, made of thin sheets. This, however, was a very different matter from using No. 12 to 16 sheets and making tubing 15 feet or more in length. This is regularly done by the Mackie Steel Tube Mfg. Company, and they claim to be the only manufacturers in the country who have made a success of it. Their plant is so well equipped with special machinery that they are not only able to turn out any size or length desired, but can furnish tubing bent in any form. Metal bedsteads are now made in highly ornamental designs, with numerous scrolls and

bends. The company receive sketches from the bedstead manufacturers and furnish tubing, accurately duplicating the pattern, without buckling or flattening.

For a great deal of work, as, for instance, metal bedsteads, sheet metal tubing has been found preferable to merchant pipe turned out by the makers of wrought pipe for gas and water. The latter is not only much heavier than necessary for such purposes, but the surface is rough, requiring much work in polishing for nickeling or enameling. Sheet steel, on the other hand, has a smooth and even a polished surface to begin with, and any gauge desired can be selected for the tubing, so as to make it quite light or fairly heavy. The brazing done by this company is accomplished by a process peculiar to themselves, making an invisible seam and a joint which is claimed to be permanent.

They have also their own process for beveling the edges of strips of sheet steel by which they are enabled to produce butted tubing with practically a lap joint.

The company are large manufacturers of umbrella rods, which are made of No. 22 sheet steel. The slots for the catches are stamped into the sheet, and a piece of steel wire is inserted for the tip, while it is being formed into a tube. Of these rods the company have a capacity of 780 dozen per day, enameled or nickeled, ready for use by the umbrella manufacturer.

Another product of these works is the Mackie bed caster, specially designed for metal bedsteads, made with a cork socket to cling to the inside of the tubular bed post.

The company have found the demand for their products running so much in excess of the capacity of their plant that they are considering its enlargement. The officers are as follows: Charles Mackie, president; Peter Thorsen, vice-president and superintendent; David G. Branckman, second vice-president; John A. Armbruster, secretary and treasurer. They maintain a city office and sample room at 166 Lake street, Chicago.

A Prospective Steel Car Concern.—The Youngstown Mfg. Company, organized at Youngstown, Ohio, several months ago by some Youngstown capitalists, who took over the Mahoning Mfg. Company, are building a plant for the manufacture of nuts and bolts and also structural boiler rivets. Identified with this concern is Henry Wick, until recently president of the National Steel Company, and as a result of Mr. Wick's retirement from that concern it has been decided to materially enlarge the interests of the Youngstown Mfg. Company, and it is possible that the concern will take up the manufacture of steel cars, and about a dozen are being built along the lines on which they expect to make them. In case the cars are satisfactory and give good results it is probable that the Youngstown Mfg. Company will put up large works and build steel cars. There is ample capital behind the concern, a number of Youngstown capitalists being connected with it. Among these are John C. Wick, Thomas McDonald, Hugh B. Wick, Robert Bentley and others. Thomas McDonald is president of the company, Hugh B. Wick treasurer, and Edwin McEwen secretary and manager.

The Hicks Locomotive & Car Works.—Excavation has begun for the construction of the new plant of the Hicks Locomotive & Car Works at Chicago Heights, Ill. The buildings will have a shop capacity of 30 locomotives and 12 passenger coaches, besides which track room will be provided for the accommodation of 200 freight cars. The company will build locomotives and freight cars and will also conduct an extensive business in repairing and remodeling all classes of rolling stock. Such an establishment is greatly needed in the vicinity of Chicago, which is the greatest railroad center in the world. The buildings to be erected at present are six in number, to which others will be added as needed. They comprise a main building, 100 x 810 feet; machine shop, 100 x 350 feet; erecting shop, 170 x 750 feet; foundry, 100 x 350 feet; office, 30 x 70 feet, and a large building for storage purposes. They will be substantial brick structures, well lighted and ventilated and heated by steam. The equipment will be of the most approved type, comprising traveling cranes, air hoists, pneumatic tools, &c.

The engines of the Hall Furnace of the Republic Iron & Steel Company, at Sharon, broke down last week and the furnace will be out of blast for several weeks while repairs are being made. This plant has been turning out more iron than ever before in its history. It will likely be much improved before being put in blast again.

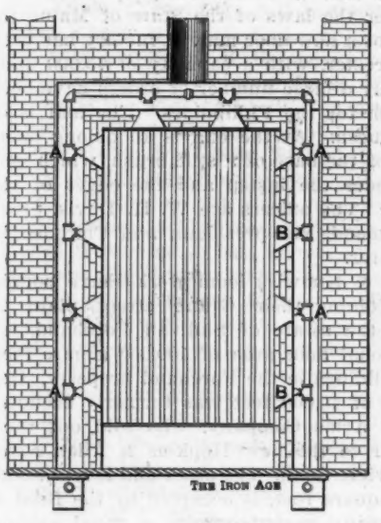


Fig. 2.

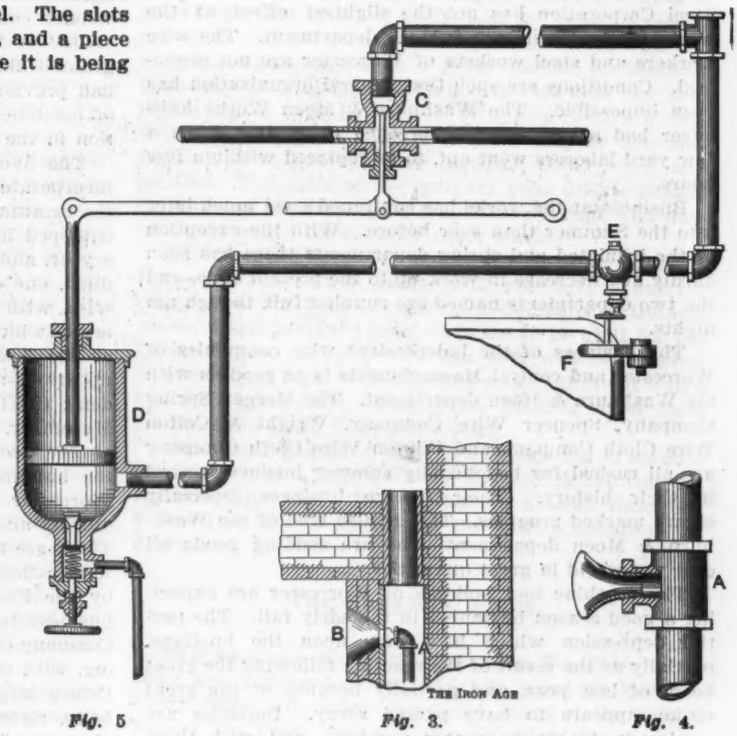


Fig. 5 *Fig. 3.* *Fig. 4.*

Details of the Device.

THE KING SMOKE CONSUMER.

Worcester Industries.

WORCESTER, MASS., July 22, 1901.—The Washburn & Moen department of the American Steel & Wire Company have started up a new department which will manufacture paper insulated wire for electrical purposes. A new building was erected for the purpose at the South Works, at Quinsigamond, and in it was installed special machinery built at the department shops. Paper insulated wire has been manufactured before by the department, but not in large sizes. The new wire is suitable for conveying the high potential current of arc lights, but only when the wire is in conduits. It will not stand exposure to the elements. Neither does it work well where there are other electric currents in close proximity, for electrolysis plays mischief with the insulation. The new wire is much cheaper than the rubber insulated wires. The new department will employ about 40 hands.

The strike in the Western plants of the United States Steel Corporation has not the slightest effect at the works of the Washburn & Moen department. The wire workers and steel workers of Worcester are not organized. Conditions are such that general organization has been impossible. The Washburn & Moen Works have never had a strike excepting once years ago, when a few yard laborers went out, to be replaced within a few hours.

Business at the works has continued good much later into the Summer than ever before. With the exception of the insulated and spring departments there has been hardly any decrease in work up to the present time, and the two departments named are running full, though not nights.

The business of the independent wire companies of Worcester and central Massachusetts is as good as with the Washburn & Moen department. The Morgan Spring Company, Spencer Wire Company, Wright & Colton Wire Cloth Company and Clinton Wire Cloth Company are all rushed far beyond any summer business record in their history. Their foreign business especially shows marked progress. This is also true of the Washburn & Moen department, who are sending goods all over the world in great quantities.

The machine tool builders of Worcester are expecting a good season beginning in the early fall. The partial depression which has come upon the business, partially as the result of the reaction following the great boom of last year, and partially because of the great strike, appears to have passed away. Inquiries are coming in in much greater numbers, and with them come orders aggregating many thousands of dollars a week.

The Morgan Construction Company are about to add a large building to their plant on Lincoln street, to be devoted to a forge room. The company have long felt the need of a larger forge department, but were prevented from increasing from lack of land. Now a considerable area adjoining the plant has been purchased, which will permit not only the building of the new forge shop, but a large extension of the machine shop, which latter will not be built this year, however.

The case of the Morgan Spring Company *vs.* American Steel Wire Company to recover for alleged breach of contract for the delivery of wire rods has been settled out of court, an entry of "neither party" having been filed at the office of the clerk of courts. The *ad damnum* of the writ was $30,000.

The new automatic water feed invented by George I. Rockwood, mechanical engineer of Worcester, for use in automobiles and in water tube boilers generally, has been given a severe test on an automobile, which has traveled more than 700 miles without mishap. The water gauge was removed from the vehicle and entire dependence placed upon the water feed. A check valve replaces the by-pass pipe ordinarily used, and when the water reaches a certain hight in the boiler the supply from the pump is shut off by the trap and the water travels round and round through boiler, trap and connecting pipes until the supply begins to fail, when the trap opens and again admits the water from the pump. Mr. Rockwood believes his invention will work as satisfactorily in torpedo boat boilers, reducing the danger of explosion.

Loring, Coes & Co., Incorporated, have awarded the contract for the erection of their new building, which will contain the company's new department for the manufacture of an improved wrench. The building will be in two sections. The three-story section will be 110 x 50 feet, and the one-story section 45 x 50 feet. An annex to the three-story section will be 45 x 50 feet. The building will be of heavy mill construction and will cost about $33,000. The contract calls for its completion by November 1.

Loring Coes, president and almost sole owner of the stock of the company, is also president of the Coes Wrench Company. It is announced that there is disagreement as to the management of the Coes Wrench Company which cannot be settled, because Loring Coes holds just an even half of the stock of the corporation, while his associates hold opposite views as to the management. The result is the starting up of a rival wrench company in Worcester. Loring Coes is the inventor of the screw wrench. His first patent was granted him in 1841. Loring Coes & Co., Incorporated, had previously devoted themselves to the manufacture of machine knives, for which they hold a high reputation in the trade.

The Worcester Mat & Brush Company have been incorporated under the laws of the State of Maine for the manufacture of a new door mat. A factory has been equipped in Worcester, with a capacity of 75,000 mats a year, and already a large number of orders have been filled, one of them for the Philippines. The mat is of wire, with oval mesh. At the end is an oblong opening in which snaps the base of a stiff brush, which gets at the hollow under the instep and the edges of the uppers of a shoe. The officers are W. H. Davis, president; C. H. Raymond, vice-president, and Clarence R. Macomber, treasurer.

The Crompton & Knowles loom works have bought the buildings adjoining their Grand street plant in Worcester from the estate of Sullivan Forehand, acquiring an additional floor area of 100,000 square feet. There are two buildings in the Forehand property. One with a floor area of 40,000 feet was formerly occupied by the Forehand Arms Company, who sold out their business last year to the new Hopkins & Allen Arms Company of Norwich, Conn. The other and newer building, with 60,000 square feet, is occupied by the Reed & Prince Mfg. Company, manufacturers of wood screws, bolts, rivets, &c. This company hold a lease of the plant which does not expire until January 1, 1904. The Crompton & Knowles people are beginning the concentration of their works at Grand street, and the Forehand buildings will eventually be occupied as a part of the loom works. The buildings have a frontage of 280 feet on the Boston & Albany Railroad.

O. M. Savels & Co., die manufacturers, are building a new factory at East Worcester. The building will be one-story high and 45 x 80 feet on the ground.

The Harrington & Richardson Arms Company are building a large addition to their plant on Park avenue. The principal purpose of the new building is to give additional storage capacity, which is demanded because the company have added shotguns to their product, which had previously been confined to revolvers.

The Eastern Bridge & Structural Company of Worcester, who began business in the spring of 1900, are very busy filling contracts. There was some anxiety at first as to what effect the absorption of the American Bridge Company as a part of the United States Steel Corporation would have on the small independent companies, but so far nothing but good has resulted. The Eastern Bridge & Structural Company buy their steel from independent concerns, and have no difficulty in securing sufficient contracts to keep the shops very busy. The Eastern Bridge & Structural Company have 1100 tons of business on hand, including a large coal handling plant at Houghton, Mich., now in process of erection, and several bridges for the New York, New Haven & Hartford Railroad.

The Consolidated Street Railway Company of

Worcester and vicinity are spending a great sum of money in re-equipping their lines, recently brought together by consolidation. One 3000 horse-power engine, recently purchased from the International Power Company of Providence, R. I., is to be supplemented by another engine which may be a little larger, and the company will soon be in the market for the machine and the generator which will be directly connected with it. The company have recently placed an order for 100 35 horse-power motors from the General Electric Company and several thousand tons of rails from the Pennsylvania Steel Company.

The Consolidated have just placed an order for 12 Cahall water tube boilers, in part to add to their present battery and in part to replace old boilers. When the new engine is ordered another large order for boilers will be placed.

The Whitcomb Mfg. Company have bought out the interests of F. E. Reed of the F. E. Reed Company and the estate of Arnold Kabley in the Kabley foundry on Gold street and are now operating the business, which is one of the important foundries of Worcester. It is understood that a new foundry is to be established in the Gold street neighborhood, which contains a number of important machine shops. The foundry will be equipped to furnish the heaviest castings, which up to the present time have not been made in Worcester.

T. C. Orndorff of Worcester has sold out his interest in the Orndorff cartridge belt business to his partner, General Anson Mills, U. S. A., retired, who has associated with him Frank R. Batchelder of Worcester, and John A. Happer of El Paso, Texas. The style of the new firm is the Anson Mills Woven Belt Cartridge Belt Company. This company's plant on Union street has equipped the entire United States army and navy, as well as all the State troops with cartridge belts. The armies of Mexico, all the South American republics and a considerable part of the Canadian army are also equipped with what is best known as the Orndorff cartridge belt. The foreign rights in Great Britain, France and Germany have been sold on a royalty basis, and plants have been established in these countries for the manufacture of the belt. An order for about 250,000 belts for the British army has been almost filled. General Mills originated the idea of a loop cartridge belt when he was a captain of cavalry in command of a small post in the Indian country, and Mr. Orndorff has developed the idea and had charge of the business during the time of its expansion.

The firm of J. F. & C. G. Warren, manufacturers of leather belt and dealers in mill supplies and wood pulleys, have been dissolved, C. G. Warren retiring from the business, which has now been incorporated, with J. F. Warren, Berthier Warren and Henry Warren as directors.

The Norton Emery Wheel Company have added another story to their large office building at Barber's Crossing, because of the need of additional room caused by the rapid increase of business. The company's new plant for the manufacture of artificial corundum at Niagara is almost ready for business. Aldus C. Higgins of Worcester, the company's patent attorney, is at Niagara taking personal charge of the installation of the electrical furnaces and other equipment.

The Worcester manufacturers of machine tools have been a little worried over a report from the West that the Western manufacturers of machine tools had informed the commission houses of Chicago, Cincinnati and Pittsburgh that hereafter manufacturers who still run on a ten hours schedule must be discriminated against in favor of the nine-hour shops. There was no strike in Worcester for nine hours. Neither did the machinists make demand for a change of hours. Two shops voluntarily made the reduction in hours without reduction of pay. They were the Morgan Construction Company, who do not manufacture machine tools, and Henry G. Barr & Co., builders of universal grinders, upright drills and special machinery. All the other shops are working on the old schedule of hours and wages. They realize their advantage over their competitors in the West, and have been on the alert to learn how the advantage would be met. They are afraid that the rumor of discrimination on the part of the Western jobbers may be true. If it is they may decide to establish commission houses for themselves in conjunction with other Eastern manufacturers of machine tools.

The United States Mobile & Power Company, a new Worcester automobile company, have turned out their first machine and tests have proved it to be an up to date automobile. It is heavier than most types, the company holding that safety and comfort more than make up for the added weight.

The Prentice Bros. Company have delivered a monster gang drill to a Pittsburgh locomotive builder. The machine is of an entirely new type and is equipped to run by electric power. It weighs 21 tons, its length is 22 feet and between housings 19 feet. It has six spindles, which will simultaneously drill holes in a locomotive frame casting 19 feet long. Moreover, one of the end spindles is arranged to bore a hole at any angle, which is necessary in the drilling of locomotive frames. Most important of all, it is claimed, the spindles can be moved in and out as well as lengthwise of the drill bed and up and down. Thus a great amount of handling is saved. It is calculated that with this drill one man and a helper will be able to drill two frames a day, while under the old system it takes four or five men three days to drill one such casting. Other work may be done. The table of the ordinary gang drill is pushed back out of the way while frames are drilled, and may be easily pulled forward for other work.

The Prentice Bros. Company are building what is said to be the largest radial drill ever turned out for the plant of the Fore River Engine Company of Quincy, Mass., where several armor clads are to be built for the United States Government. The drill will be between 16 and 18 feet high, with a 10-foot swing, and will weigh about 18 tons. The company are building other tools for the Fore River Company's plant.

The Prentice Bros. Company's application of electric driving to engine lathes will be adopted by the General Electric Company. The application already described in *The Iron Age* is considered the most economical yet devised. J. N.

The Laughlin Plant.

THE additions which the American Tin Plate Company are making to their Laughlin plant at Martin's Ferry, Ohio, will, when completed, make it the second largest Tin Plate works in the United States, and, in point of modern improvements and appliances, probably the finest of its kind in the world. The new plant will consist of 32 hot mills. It is formed by the consolidation of the machinery of three plants moved from dismantled plants in Cincinnati and the Pittsburgh district, together with the original Laughlin plant. The works throughout will be run by electricity except in the case of the rolls and the heaviest machinery. A complete system of traveling electrical cranes will do away with all trucks, tramways and railroad switches within the works. The plant is piped throughout for natural gas, and it is also provided with generators for the manufacture of coal gas, for use should the supply of natural gas fail. When complete and in operation the works will employ between 5000 and 6000 men. It is expected that the plant will be ready by the end of this month.

The American Boiler Manufacturers' Association of the United States and Canada will hold their annual convention at Buffalo, N. Y., the coming month. The convention will begin August 12, and a session of two or three days will be held. It is expected that the members will desire to pass the remainder of the week visiting the Pan-American Exposition. The headquarters of the association will be at the Iroquois Hotel. Full particulars can be obtained from J. D. Farasey, secretary of the association, Forest street, and N. Y., P. & O. Railway, Cleveland, Ohio.

The Tin Plate Production of Pennsylvania.

The Bureau of Industrial Statistics of Pennsylvania has issued the following statistical data relative to the tin plate industry of that State:

In 1899 Pennsylvania had 21 black plate plants—that is, tin plate plants manufacturing their own black plate for tinning. Eighteen of these plants were under one ownership, five of which were subsequently dismantled and the remaining 13 operated for a part of 1900. Two of the remaining three were run in 1900, making 15 black plate tin works plants operated in Pennsylvania in 1900.

The average number of days of employment was only 201, the occasion of which was a strike which lasted for fully three months. Notwithstanding the dismantling of these five plants, by reason of the better equipment of the live ones the capacity remained practically the same, the output for 1899 being 1017 net tons daily and for 1900 1014 net tons.

The capital invested in these 15 plants was $9,315,000, as against $8,150,000 invested in the 21 plants in 1899. Production of black plate for tinning was 302,928,000 pounds. Of this production 255,844,000 pounds were tinned. The value of the tinned production was $10,561,760, and the total value of the black plate works was $12,197,787.

There were 7069 workmen employed, skilled and unskilled, boys, women and girls. The aggregate amount of wages paid to them was $3,428,259, and the average yearly earnings of all was $484.97. The average daily wage for all was $2.41.

Six tin plate dipping works were in operation during the year—that is, establishments where all black plate is purchased. These plants have 48 tinning sets, with a daily capacity of 194 net tons of tin and terne plate. The capital invested is $451,827. The working people employed were 363, skilled and unskilled, boys, women and girls. The aggregate amount of wages paid to them was $137,700, and the average yearly earnings for all $371.08, with an average daily wage for all of $1.47.

The total production of tin and terne plate by the black plate works and the dipping works combined was 289,392,000 pounds, and the aggregate value $12,669,747.

In the production of black plate for tinning produced at the black plate works there is a falling off from 1899 of 65,672,734 pounds, or 17.8 per cent., which falling off is accounted for because a strike prevailed during 1900 for fully three months. This strike likewise affected the production of the tinned product, which fell off 36,320,734 pounds, or 12.4 per cent.

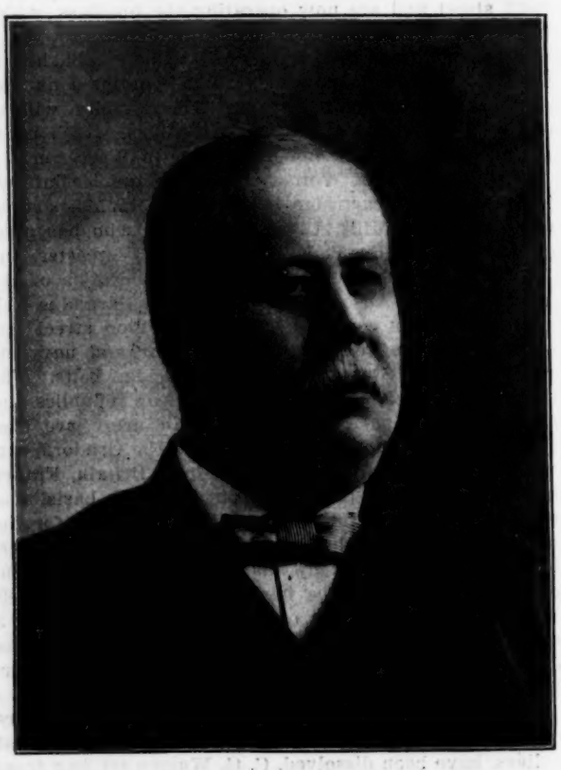
The average value per net ton of black plate for tinning produced in 1900 was $69.49, an increase over the average value of 1899 of $19.70, or 39.6 per cent. The average value per 100 pounds of the tin and terne plate produced at these works was $14.13, an increase over 1899 of 62 cents, or 17.7 per cent. The average number of workmen employed was 613 less than in 1899, or a decrease of 8 per cent. The average earnings of all workmen employed were but $484.97, a decrease from 1899 of $42.81, or 8.1 per cent. The average daily wage for all workmen employed was $2.41, an increase over 1899 of 5 cents per day, or 2.1 per cent.

Indiana Harbor.—Contracts have been let for the building of a new harbor on Lake Michigan, eight miles east of South Chicago. It will be known as Indiana Harbor, being in the State of Indiana. The new steel plant of the Inland Steel Company will be located near this harbor, and it is expected that other large manufacturing enterprises will be attracted to the vicinity.

The following figures, compiled by the United States Geological Survey, show the production of the principal natural abrasives in the United States for 1899 and 1900: Oilstones, whetstones, &c., 1899, $208,283; 1900, $181,011. Grindstones, 1899, $675,586; 1900, $701,121. Buhrstones, 1899, $28,115; 1900, $32,858. Infusorial earth, 1899, $25,302; 1900, $24,207. Crystalline quartz, 1899, $39,000; 1900, $36,205. Garnet, 1899, $98,325; 1900, $123,475. Corundum and emery, 1899, $150,000; 1900, $102,715.

Charles Calvin Briggs.

Charles Calvin Briggs, a member of the board of managers of Jones & Laughlins, Limited, Pittsburgh, died in that city on the 19th, after an illness which lasted over a year and a half. Mr. Briggs was born in Auburn, Maine, September 24, 1840. He was educated in the New England public schools and an academy. When 19 years old he went to Chicago, where he secured employment with an iron merchant, and he had been prominently connected with the iron business ever since. At the outbreak of the war he enlisted in Battery A, Light Artillery, as sergeant. He remained in the artillery two years and then enlisted as ensign in the navy, serving the greater part of the time on the lineship "Cincinnati." After the war he came to Pittsburgh, where he found employment as traveling agent in the sales department of Jones & Laughlins, where his advancement



CHARLES CALVIN BRIGGS.

was rapid. At the time of his death he was one of the board of managers of the company, and was well known throughout the steel industries of the country.

The semiannual report of the Southern Iron Committee shows heavy shipments of pipe and pig iron for the first six months of the year, as follows: Shipments of pig iron from Alabama and Tennessee, 760,903 tons, an increase of 71,395 tons; from the Birmingham district alone, 420,879; exported, 18,374 tons. Cast iron pipe shipments from Alabama and Tennessee, 79,910 tons, against 31,909 tons for the same period last year; the Birmingham district alone, 40,426 tons, an increase of 31,049 tons, or 400 per cent.

The bar mill at the American Sheet Steel Company's Falcon Works, Niles, Ohio, is being torn out and will be replaced with a heavier mill, removed from the Struthers, Ohio, plant.

An agreement has at length been reached over the price of the large floating steel dry dock at Havana belonging to the Spanish Government, whereby the Navy Department has purchased the dock for $185,000. The original price at which the dock was offered by Spain was $270,000. It is stated by the Chief Naval Constructor that the dock has been in constant use.

The Future of Acetylene Lighting.—II.*

BY GEORGE LANDIS WILSON.

FOR RAILROAD LIGHTING.

Railroad men who are up to date in their desire to reduce the hazards of operation to a minimum stand ready to give the engineers on night runs every appliance which will tend to do away with collisions and other mishaps. Not the least of these is a good light, and acetylene in a proper device is demonstrated to be the very best illuminant in a headlight. Its steadiness, cheapness, simplicity, reliability, durability and great power, free from all the drawbacks that attend the use of other intense lights, will crowd it rapidly to the front and make acetylene the only acceptable headlight for modern railway operation. Familiarity with acetylene on engines in the operating and mechanical departments of our great railway systems will make its adoption in coaches a matter of course. Eight or ten burners, each consuming a maximum of ¾ foot of gas per hour, are represented to light a car satisfactorily for many roads. As used in most of the all night service, these jets represent a consumption of about 60 feet of acetylene, which cannot cost more than 60 cents under the most unfavorable circumstances, or 42 cents under the best. One hundred and eighty feet of Pintsch gas required for the same service, at $5 per 1000, costs 90 cents, which in the case of companies operating their own gas works is reduced to 70 cents. To the saving shown by simple mathematical computation must be added the enormous advantages which attend the fact that it is practical to apply acetylene apparatus to coaches in such form that recharging may be done anywhere, at any time, by such employees as may be present. No prophet is required to foretell the great progress acetylene must make on transportation lines.

Developments of the bicycle lamp for automobiles, carriages and lanterns bid fair to meet the demands of an exacting public which has been compelled to admit the efficiency of such devices while recognizing their limitations.

Single lights will continue to be a fine introduction of acetylene to many households, but until some cheap and effective system of refrigeration is developed and applied to table lamps their necessary bulk will keep them in a class which is designated as "portable" largely through courtesy or the license of the advertiser.

GENERATOR DEVELOPMENT.

While generator development has been very rapid during the past five years, a little sober thought shows that most of the changes made have been in the direction of greater simplicity, which usually has resulted in better performance. Still more will simplicity mark the acceptable makes of generator which the market will demand in the future. Manufacturers who fail to meet this public demand will pay dearly for their folly.

Much has been written regarding types of generators which is justly regarded as empirical. The arbitrary dictum that one or another class or type of generators is condemned and unfitted for all purposes will be modified by the real expert who has added to careful experiment and scientific tabulation a well assimilated and classified mass of information derived from actual experience and study in the lighting field.

Acetylenists of the better class already know, and in the future all will admit, that each installation is a problem by itself, to be carefully considered and decided right if all conditions are to be completely met and the customer of to-day made the friend and reference of to-morrow or next year.

THE DIFFERENT TYPES

No generator, and no type of generator, is "the best" for every installation. The size, requirements, occupancy and location must be considered. Nature of demand, class of attendance and climate even have a bearing upon performance—either low first cost, lightness, durability, compactness or economy of maintenance may be the one important feature to which all other considerations must bow, and in some cases an unstable foundation may compel the abandonment of all preconceived ideas. There are special applications that permit the sacrifice of everything else to secure automatic operation with an interval of six months between the times of recharging. There are other places where no carbide feeding mechanism will be so good as an industrious laborer with a well hung shovel. Between the two extremes indicated there are occasions which will demand great variations in design to accommodate the generator to the needs of the buyer.

The "recession" type is ideal for many purposes; the "dump" or "carbide feed" seems to be imperative sometimes; for certain classes of service, the "overflow" generator appears to meet every requirement; and there are abnormal conditions which make the condemned "drip" type the only available apparatus. Either one put in the wrong place will bring disappointment to the buyer and seller alike.

How may these places be distinguished or classified? That information will be part of the capital of the intelligent and diligent student of acetylene who one day will class as an engineer.

BURNERS.

Burners must be selected under many of the rules that apply to the choice of generators. There are times when durability may be profitably sacrificed to secure maximum efficiency, but it will more often be found desirable to have burners durable at all hazards with the greatest efficiency that appears possible under the circumstances. Price, while a secondary consideration, should show a downward tendency as production increases and facilities are improved.

Purification in the ordinary small outfit has been the basis of much humbug in the acetylene business. The bubbling of gas through water will never remove the products of polymerization, nor the small particles of impurities held in mechanical suspension. The mechanical scrubber will be adopted as a part of every permanent installation, and in extreme cases, where proper attendance is at hand, some chemical purifiers will be placed, though the general use of such appliances seems remote at this time.

The application of carbide, acetylene and residuum to uses outside the lighting field are not properly part of this presentation, but in passing it is proper to note that they will have a wider application in agriculture, therapy, pharmacy and applied chemistry. The pure chemistry of acetylene seems to be well settled, but there are several directions which experimental science may take that promise results. Inasmuch as the use of acetylene and air mixtures through pipes is impracticable, there is a field for a satisfactory cheap gas to serve as a diluent for acetylene, which shall be harmless and practically of the same density, so stratification may be reduced to the minimum.

In the production of carbide the discovery of a proper flux and the maximum utilization of waste in by-products or in the preparation of materials offer inviting openings for investigators.

In view of the great variety of electric furnaces already developed radical departures seem improbable, but no one can gainsay the fact that every advance in electrical development means a corresponding forward stride in the production of carbide, with benefit to the acetylene industry.

THE OPERATING COST.

The price of carbide to the consumer will always be a prime factor in the extension of the acetylene business, so that carbide processes are worth consideration. Experiments on a large scale have demonstrated that carbide of excellent quality can be made from many carbon bases, so it is possible that some materials less burdened with impurities than the coke now used will make easy the production of carbide more uniform in quality than any commercially known at this time.

The reduction in price made during the past year encourages the belief that the growth of the industry will bring about still further declines below the fairly reasonable prices ruling in most parts of the United States.

* A copyrighted paper read at the meeting of the International Acetylene Association at Buffalo, N. Y., June 18, 1901.

Uniformity in the system of distribution must be brought about, and is coming slowly, but some radical departures from existing methods of transportation and packing should be made if the acetylene consumer is to be relieved of all the dead weight possible under the circumstances. Some way should be devised to inaugurate the use of a uniform returnable package containing about 200 pounds. While the drums used are excellent for the purpose, a little reflection raises the question what they cost and what they are good for when empty. As they cost about 10 per cent. of the gross selling price and are practically worthless to most consumers of carbide, it is plain that their rational elimination means economy for the user of acetylene. Most things in this world work out about right, and so the 100-pound can may properly be considered a temporary expedient.

The Patent Office has been so hard worked by inventors and alleged inventors of acetylene appliances that it looks to a conservative observer as if the end were about reached. The future may see some radical departures in the direction of burners, but developments in other lines seem likely to be limited to minor improvements. Before the real ownership of some devices now quite generally used is settled there are indications that there will be some bitterly fought patent law suits, but common sense appears to dictate a policy in this connection which shall limit all annoyance and expense to the trade. The Electro Gas Company, claiming all the basic carbide and acetylene rights, owe it to their stockholders to protect the public against unwarranted attempts of adventurers and speculators to reap where others have sown.

INSURANCE.

Insurance permission under existing conditions is a precedent to the successful conduct of the acetylene business. From a position of prohibition in 1896 the underwriters have moved forward to the point of indorsing permits for the installation and use inside buildings of such apparatus as has passed the inspection of their engineers, and without additional premium.

During the past few months there has been some discussion of the question whether "approved" and "permitted" are equivalent terms. The distinction appears to be that appliances for extinguishing fires and reducing fire hazards may be "approved," while hazards themselves may be "permitted." If this is accepted as a proper version of the matter, it is certain that the record of acetylene generators in actual use will entitle them to be advanced from the class of "permitted" to that of "approved" devices, and it does not seem a far cry, if facts count for more than theories, to the time when the standard fire policy now carrying permission to use kerosene and store five barrels on the premises will grant the occupant the right to use acetylene or ignore the matter entirely. It does not seem unreasonable to expect that in many cases where other lighting systems are displaced, reductions in premium rate will accompany the installation of acetylene. Such action is justifiable, and will prove profitable for the underwriters who take the advanced position.

SELLING.

Marketing is the great acetylene problem. Scientifically, experimentally, technically, mechanically, acetylene has reached a stature worthy of every consideration. Commercially it is still in swaddling clothes. Vast sums have been spent in exploiting it, years of active life have been devoted to it, but to the great mass of the people it is but a beautiful chimera. In spots, where conservatism and egotism have not gone to seed, the friends of acetylene have succeeded in proving their right to live and thrive; their patrons rise up to call them blessed, and carping critics have been forced to cease their unwarranted attacks. The good record will continue to be made, but the advance will be in geometrical instead of arithmetical progression; now it is a question of multiplication, not slow moving addition.

The satisfaction derived by a user of acetylene from his apparatus is very closely related to the expertness of the man who attended to his installation. This being the case, it is natural that much of the best work has been and will be done by traveling representatives of manufacturers. However, such methods are unduly expensive, and it behooves the continuously successful builder of generators to secure and retain local representatives who will qualify themselves to handle the business. Specialists are best, but circumstances limit their usefulness for some time to a relatively small number of points. The established dealer who is qualified to install generators and pipe buildings for many years must be the outlet for the manufacturer. Plumbers, fitters, tinners and machinists with a fair mechanical equipment and a reasonable amount of energy will discover in acetylene a source of profit and reputation if they choose reliable generators from established responsible manufacturers who will properly guarantee their goods. In the face of such competition the fakir must go back to the gold brick business and the experimental tinker cannot secure a hearing.

THE OUTLOOK.

The future checks upon the introduction of acetylene, like those of the past, will be ignorance, doubt and fear. Many men of letters, and men of affairs are densely ignorant about some things—acetylene is one of those things.

There is a peculiar quality of human nature that will cause men to face bravely any danger which is seen while seeking every means to avoid the possible terrors of the unknown, which sometimes develops genuine fright before the innocent cause of all the imaginary trouble appears in plain view. There is nothing quite so sure to strike terror to the mind of a child as the sigh of a vibrating chimney hole cover on a blustering, windy night, but the dread is gone when the cause is located and explained. In the same way will the prejudice now existing in some quarters be dissipated when a little accurate information is allowed to climb over the high wall of self satisfaction with which these ultra conservatives have surrounded themselves.

If a man is intelligent he needs nothing but education to make him a radical on the side of acetylene—and more radicals are made each month as the scope of the acetylene industry extends.

According to the report of the Interstate Commerce Commission for the year ending June 30, 1900, there were employed on the railroads of the United States 1,017,653 persons, whose total earnings were $577,264,841. Among the employees were 42,837 engine men, 44,130 firemen, 29,957 conductors and 74,274 other train men. There were 50,789 switchmen, flagmen and watchmen, 324,946 employed in maintenance of way, 197,799 in maintenance of equipment and 450,063 conducting transportation.

Rumor has it that a great combination of paint manufacturers is being organized, to be known as the United States Paint Corporation, with a capitalization of $100,000,000. The idea of the promoters, it is said, is to embrace in the proposed combination a number of lead corroding plants, zinc oxide works, linseed oil mills, varnish factories, turpentine distilleries, brush factories, window glass works, &c. Chicago capitalists are understood to be back of the enterprise.

Delegates of the different metal trades unions met in St. Louis, Mo., on Monday for the purpose of forming a National Metal Trades Council. The new national body is designed as an organization to embrace all local metal trades councils, which at present have jurisdiction in their own districts only.

As an indication of steel rail prices in France, we may note that the firm of De Wendel have taken an order for 10,000 tons for the Eastern Railroad of France at 168 francs, or about $33.50, delivered at Batignalles, near Paris.

Edgar A. Bienenstok & Co., dealers in second hand machinery, St. Louis, Mo., have secured the services of S. C. Foster in their sales department.

Ontario's Mineral Output.

TORONTO, July 20, 1901.—The annual report of the Ontario Bureau of Mines has just appeared. Besides the figures for the whole of the last calendar year it gives those for the first quarter of the current year. The mineral production for the year totaled $9,298,624, as against $8,416,673 in 1899 and $7,235,877 in 1898. The chief increases were in Portland cement, petroleum products, iron ore, pig iron, nickel and copper.

Twelve iron mines were worked in the province last year, their total production being 90,302 tons of ore, valued at the pit's mouth at $11,805, as against 73,391 tons, valued at $80,504, in 1899. A large part of the increase is due to the opening of the Helen mine. Of the ore mined 16,350 tons were magnetite and 73,952 tons were hematite. The following figures show the quantity of the elements of production in the iron industry in the last five years:

	1896.	1900.
Ore smelted, tons	51,138	376,381
Scale and mill cinder, tons	5,883	42,943
Limestone for flux, tons	8,657	82,157
Coke for fuel, tons	30,348	242,314
Pig iron product, tons	28,302	228,701
Steel product, tons	.....	2,819
Value of pig iron produced	$323,780	$2,916,920
Wages for labor	$47,000	$97,925
Average number of workmen	125	419

Of ores raised from iron mines in Ontario there were smelted last year 22,887 tons, or 23 per cent. of the whole, the remainder being imported from the United States, chiefly from Lake Superior mines. The Director of the Mining Bureau considers it in every way probable that, now there is an abundance of good ore produced in the Michipicoton district, the proportion of domestic ore used will increase rapidly. He considers the outlook for the Ontario iron industry excellent.

Of nickel the production in 1900 amounted to 3540 tons in the matte, valued at $756,626, as against 2872 tons in 1899, valued at $526,104. The copper content of the same matte showed a proportionate increase, there being 3364 tons of it, valued at $319,681, as against 2834 tons, valued at $176,236, in 1899.

The aggregate value of the mineral production of the first quarter of the current year was $827,866. This is a material advance on the ratio for the whole year 1900. The largest increases for the three months are in iron ore and pig iron. Of iron ore 48,663 net tons were smelted into pig iron during the quarter, 21,083 tons being from Ontario mines, and the remaining 27,580 tons from United States mines.

The Sault Steel Plant.

The report contains a chapter on the metallurgical industries of Sault Ste. Marie by Frank N. Speller. Under the head of "A Steel Making Plant," after an introductory paragraph, Mr. Speller has this to say of the Clergue Steel Works:

"The coke to be used at the Sault must be brought from either the Connellsville or Punxsutawney district. This is the most important item in the cost sheet of the locality under consideration. It means an approximate haul of 210 miles by rail from Connellsville to Lorain or Cleveland, and a water haul to the Sault equivalent to 80 miles of rail haul. As it will require 1.70 tons of coke to smelt an equal quantity of ore and produce 1 ton of pig iron, applying Mr. Moxham's freight rate [$3.25 per ton of pig iron for assembling the necessary materials at Pittsburgh] we find that it will cost about $1.97 to bring this fuel within easy reach of good ore and limestone on the north shore of Lake Superior or at the Sault; so that it appears quite evident that the cost of assembling the necessary raw material—coke, limestone and iron ore—in the neighborhood of Sault Ste. Marie should be much less than at Pittsburgh.

"At present the Bessemer steel works and rail mills are being installed with three 8-foot cupolas for melting the pig iron for conversion."

Exploring for Iron Ore.

The Director says: "Exploring for iron ore goes on in various parts of the province. One of the Government diamond drills has been at work for over a year on the Mattawin iron range west of Lake Superior, and the borings have indicated the presence of large bodies of ore, much of which, however, is somewhat low in metallic contents. Tests have also been in progress on the Atikokan range. Over a year ago R. M. Hunter of Duluth took an option on locations 10 E, 11 E and 12 E, owned by Mrs. J. C. Graham and McKellar Bros. of Fort William, paying $10,000 cash and agreeing to pay a further sum of $140,000 by May 1 if the option to purchase were exercised. Another condition was that Mr. Hunter should purchase all the locations on the range owned by the above named parties, 16 in all, and being 21 to 27 E, 86 E and 100 to 104 E, for the price of $420,000, but it is not certain that more than the three properties 10, 11 and 12 E will at this time change hands. A tunnel 400 feet long, driven into the mountain at its base and about 100 feet below the summit, showed a thickness of over 80 feet of ore. Considerable work has also been done recently with diamond drills. Several American experts have reported favorably on the locations, and it is said the American Steel & Wire Company will complete the purchase and work the deposits on a large scale, shipping the ore to smelters in the United States. The Lake Superior Power Company have been actively prospecting for ore in the Michipicoton mining division and along the proposed route of the Algoma Central Railway."

The Helen Mine.

Writing of the "Mines of Eastern Ontario," C. De Kalle speaks thus, in part, of the Helen mine:

"The company controlled by F. H. Clergue of Sault Ste. Marie, Ont., have developed the Helen iron mine beyond the experimental stage to that of large and steady production. The ore body has been proved to have a longitudinal extension of 1100 feet and a hight above the level of Boyer Lake (on the east shore of which the mine has been opened) of 97 feet, and by diamond drilling it has been shown to extend at least 188 feet below the lake level. The only underground work conducted so far has been some drifting at the eastern end of the deposit. The main tunnel is 260 feet long, with two branches. The southwest drift begins 31 feet from the mouth of the tunnel, and extends 85 feet; and the northeast drift starts 50 feet from the tunnel entrance and has a length of 35 feet. These workings are entirely in ore. The ore consists mainly of limonite and other hydrous oxides of iron, with an admixture of hematite. Its physical structure is admirable for smelting, being sufficiently hard to produce but little dust, and yet soft enough to admit of ready and rapid reduction in the furnace. The iron content averages about 58 per cent., the sulphur from 0.08 to 0.20 per cent., and the phosphorus from 0.011 to 0.067 per cent. The actual mining is being conducted under contract by Powell & Mitchell of Marquette, Mich, who employ about 400 men."

Iron Ore of Nipissing.

In the course of a long report to the bureau upon the iron ores of a portion of the Nipissing district explored by him, Willet G. Miller says that no bodies of soft or hematite ore have so far been discovered in the district, but that deposits of magnetite of considerable promise are known. But it has not been the general experience in other districts of like character that outcroppings of such bodies of ore are discovered at the surface. In Mr. Miller's opinion that is not to be wondered at, as soft ores are much more easily worn down by agents of denudation than are magnetites. He considers that if a number of ore bodies of economic value are not found, however, in association with the abounding jaspilyte then the Nipissing ranges are of a unique character.

Iron Ranges of the Lower Huronian.

Prof. A. P. Coleman has an interesting paper bearing the above mentioned title. It is of considerable length, taking up 30 pages of the report. From his remarks on the extent of the iron ranges the following is taken:

"It has long been known that the Vermillion iron range of Minnesota crossed the boundary into Ontario at Hunter's Island, and jaspery iron ores have been found at various points in that region, *e.g.*, by W. H. C.

Smith on Jasper Lake, where banded jasper and hematite have a width of 40 or 50 feet. Brecciated jasper and iron ore are known from the Mattawin region also, and from a number of points to the north, as noted by Dr. Bell; but in the latter case the deposits may be of Animikie age and therefore not to be included here.

"Jasper pebbles are numerous at Lac Seul and in other places west and northwest of Lake Nipigon, but their source has not been found and it is possible that they may have come long distances during the Ice Age, perhaps from some of the deposits near Hudson Bay, reported by Dr. Bell.

"In the band of Huronian mapped as running eastward from Lake Nipigon in the direction of Long Lake, a deposit of banded jasper and iron ore has been examined by J. Watson Bain near the mouth of Black Sturgeon River, and an extension of it is reported from the same stretch of Huronian, north of Long Lake. To the south of this 10 or 12 miles from the mouth of Pic River the other type of deposit is found, brecciated granular silica with magnetite.

"The Michipicoton range is separated from this by a wide area of Laurentian, and the first outcrop occurs about 15 miles west of Iron Lake, near the head waters of Dog River. It is jaspery and cherty with interbanded magnetite and hematite; but on the eastward extension of the line across Dog River one finds the granular variety mixed with magnetite near Paint Lake. A few miles to the north what appears to be a parallel band has been traced by Professor Willmott and has been found to include promising ore deposits. The whole extent of this range as traced by Professor Willmott is about 27 miles, the longest continuous stretch in Ontario." C. A. C. J.

Derrick Cranes and Hoisting Engines.—A very large catalogue has been issued by the American Hoist & Derrick Company of St. Paul, Minn., describing the complete line of contractors' and quarrymen's machinery manufactured by them. The book deals with hoisting engines made with and without boilers, hoists driven by belt, electric, horse or hand power, derricks of many different patterns, locomotive cranes, elevators, winches, hand powers, and so on. The illustrations show many interesting appliances which have been installed by the concern. The 40-ton locomotive jib crane at the United States Navy Yard, League Island, will lift a maximum load at the rate of 7 feet per minute and a load of 15 tons at the rate of 20 feet per minute; will travel along a track 50 feet per minute, the gauge of the track being 20 feet. The longest reach of the jib is 85 feet from the center of the track. The time required to slew the booms a complete revolution is 2 minutes.

The Hirsch Rolling Mill Company.—The Hirsch Rolling Mill Company have purchased and remodeled the old Ewald rolling mill, at Ecoff avenue and the Missouri Pacific Railroad crossing, St. Louis. The mill has been put in operation this week, making merchant bars, angles, shapes, spikes, bolts, light rails, &c. Its capacity is 150 tons per day. Marcus A. Hirsch is president and general manager, Cal Hirsch vice-president, Eugene D. Hirsch secretary and L. K. Hirsch of Chicago, treasurer.

As showing how the shops of the engine builders throughout the country are filled up with work for a long time ahead, it may be noted that the Director of the Department of Public Works of Pittsburgh decided to buy two engines for the pumping station in that city, but was unable to find a single engine concern that could make the deliveries inside of two years. For this reason the Director has decided not to place the order for the engines at present, preferring to wait until the shops are not so busy.

Germany's Pig Iron Production.—The production of pig iron in Germany in May was 676,774 metric tons, as compared with 651,944 in April, 1901, and 722,212 tons in May, 1900. For the first five months of 1901 the output was 3,320,733 tons, as compared with 3,407,840 during the corresponding period of 1900. Of the total production for May, 1901, 111,998 tons was forge pig, 44,038 tons was Bessemer, 392,544 tons was basic and 128,194 tons was foundry iron.

The Chicago Molders' Strike.

The news from Chicago relative to the molders' strike seems to be more favorable to the men than to the employers. The union leaders claim that over one-fourth of those who struck are now back at work, the employers having agreed to pay the rate demanded. The following list has been published of the foundrymen paying the advanced rate and the number of molders employed by each:

Elizabeth Steel Foundry Company, 65 men.
Paul Berger Mfg. Company, 20 men.
James Brady Foundry Company, 35 men.
Hawley Down Draft Company, 12 men.
Dauchy Iron Works, 15 men.
Davidson Foundry Company, 20 men.
Davis & Ludwig, 15 men.
McGreevy & Haggerty Foundry Company, 25 men.
Barton & Maas Foundry Company, 26 men.
Vulcan Iron Works, 25 men.
Featherstone Foundry Company, 50 men.
Paul Dickinson Foundry Company, 12 men.
O. W. Rom Foundry Company, 20 men.
Henry Roos Foundry Company, 25 men.
J. W. Reedy Elevator Company, 45 men.
Monroe Foundry Company, 20 men.

Notwithstanding the opposition to the strike by the national officers of the Iron Molders' Union, the Chicago strikers have received pledges of assistance from unions in St. Louis, Pittsburgh and Milwaukee. Such unions are also defying the national officers, who are thus shown to be without control over the rank and file of their organization. This is portentous of trouble in other cities if the Chicago molders win their fight for the full $3 per day.

The inability of the national officers to control the Chicago molders and the progress made by the latter in securing the increased wages demanded have fomented the strike fever in other cities. The members of the Iron Molders' Union of North America appear to have suddenly become insubordinate and are refusing to take counsel from President Martin Fox, who has so long been their trusted leader. The example set by the Chicago molders naturally causes molders elsewhere to feel that their chances of success in a contest for higher wages are good, even if they do not have the backing of the national organization. They may, however, be overconfident, and a widespread strike may prove their undoing. The Chicago foundrymen who have not yet yielded, and who largely belong to the National Founders' Association, are quite determined to maintain their position, and in a test of endurance could certainly hold out longer than their men, especially if the support of the latter should be cut off by strikes in other cities from which help has been promised and is expected. The National Founders' Association is a strong organization, ably managed, and is prepared for just such a condition of affairs as now presents itself. Against this powerful body the molders will find themselves arrayed in every manufacturing center of any consequence.

(By Telegraph.)

It is claimed by other foundrymen that the strikers have now secured about all they can expect. The National Founders' Association have not had any of their Chicago members weaken and will continue to hold out against the demand of the union. The Allis-Chalmers Company employ more molders in their Chicago shops than are employed in all the shops which have thus far yielded to the men. The national officers of the union are endeavoring to settle the strike, but a grave suspicion prevails that while some of these officers are strictly adhering to the agreement of their organization with the National Founders' Association, other officers are playing a double game and are encouraging the Chicago molders in their insubordination.

The machinists' strike here is in *status quo*, but in Milwaukee it is practically ended. The Allis shops in Milwaukee now have a full force of men, and the other shops are rapidly getting into the same condition.

The Iron Age

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One Possibility of the Great Strike.

It may be a little early to speculate on the result of the contest now on between the United States Steel Corporation and the Amalgamated Association. Strikes or labor troubles are uncertain matters, it being difficult to determine when they start whether they will be of short duration or extended over a long period of time. Some strikes can be easily gauged at their beginning because of the weak condition of one side or the other. In this case both sides seem to be well equipped to conduct a long struggle. Special considerations may, however, induce one or the other of the parties engaged to quickly make overtures for peace. In view of the important interests involved and the great amount of injury that can be done not only to those immediately affected, but also to a very wide circle of business connections, it is to be hoped that the struggle may not continue for a long time, but that it will be brought to an early termination.

A strike lasting three or four weeks would not be a very serious matter, as it would merely mean the ordinary summer vacation. It would probably simply result in an accumulation of business, which would keep the mills very busy for some considerable time in the effort to catch up with orders. This would make the fall months active and would probably subject no one to great inconvenience. Should the strike continue for three months, or as long as the labor troubles in the same mills continued last year, it would mean the cutting off of a very large part of the supplies necessary for great manufacturing consumers, who need to operate their works actively for some time to come in preparing for fall and winter requirements. This would be unfortunate for many interests concerned, unless arrangements could be made for importing large quantities of necessary material from abroad. It is not believed that a sufficient supply could thus be obtained, as foreign manufacturing establishments are hardly in a position to turn out great quantities of what would be needed here on such comparatively short notice. And, further, it would require considerable nerve, not to say recklessness, for any consumer to place orders abroad for large quantities, as he would face a probable loss if the strike ended before such purchases were marketed.

The result of a long stoppage, it is now reasonable to suppose, would be of a similar character to that which was experienced on the reopening of the bar, sheet and tin plate mills last fall after a shut down of three months. Stocks of manufactured goods will be so completely exhausted, and the supply of rolling mill products so much in arrears in meeting the requirements of the country, that the manufacturers will again find their facilities taxed to the utmost for months afterward. In that event the easing of prices anticipated from the steady increase of producing capacity will be postponed. If the strike should be extended to other plants controlled by the United States Steel Corporation, as threatened by President Shaffer, the effect on the iron and steel markets will be still more pronounced.

Mond Gas.

The prominence which in current technical and commercial literature has been given to the plans of the promoters of the Mond gas development, and the great expectations of industrial advancement of which such plans are the somewhat unsubstantial basis, will give interest to a brief discussion of the subject in view of recent Parliamentary action.

Considered in the light of its chemical composition, the Mond gas does not seem to be an improvement upon what has gone before it. The following is given on good authority as its average composition:

Hydrogen	24.8
Marsh gas	2.3
Carbon monoxide	13.2
Carbon dioxide	12.9
Nitrogen	46.8
Total	100.0

A gas of this composition is only about 40.3 combustible, and has a calorific value not greater than 154.6 B. T. units per cubic foot. It is difficult at this distance to see why it should have created any excitement as a discovery of great value in this department of industrial chemistry. The Dowson gas is well known, and probably familiar to every gas consumer on a large scale, as it has been widely advertised in connection with tests of gas engines. Its average composition is as follows:

Hydrogen	19.8
Marsh gas	1.3
Carbon monoxide	23.8
Carbon dioxide	6.3
Nitrogen	48.8
Total	100.0

This composition contains 44.9 per cent. of combustible, or nearly 10 per cent. more than the Mond gas, and has a calorific value of 164 B. T. units per cubic foot. Both gases are of low efficiency and have a fuel value so small that they must be distributed with an economy which would seem to be impossible to compete with coal. That they are cheap to produce per unit of value is probably true, but as both contain some 60 per cent. of useless matter it follows that in distribution 60 per cent. of capacity of holders and conduits will be unproductive of returns on the capital which has to be invested in them. Experience has shown that in the case of a diluent like nitrogen it is cheaper to add it at the point of consumption than to transport it in original admixture.

The *raison d'être* of the Mond process is said to be the production of fuel and power gas at a very low price, as a practical economy to fuel consumers. The process of its manufacture is substantially as follows: Bituminous coal slack is charged from hoppers holding about half a ton into the long bell of producers, where preliminary carbonization takes place. This is a distilling process and gives a crude retort coal gas. Steam and air are then passed through the mass of incandescent coke, giving, as long as the temperature remains high enough to decompose the vapor of water, a crude water gas from the steam and a crude and extremely lean producer gas from the air. The hot gases are drawn off through a recuperator, where they heat the incoming air blast. From this they are passed to a washer and cooled to about 194° F. They next pass into a lead lined tower filled with tiles, over which drips acid liquor carrying about 4 per cent. excess of sulphuric acid. The gas next goes to a cooling tower, where a descending spray of cold water condenses the steam; thence to still another tower, where it is further cooled by giving up its heat to the air constituting the blast. The object of this preheating of the blast is to enable the air to take up moisture until the point of saturation is reached. This, in substance, is the process as described by Herbert A.

Humphreys in a paper before the British Institution of Mechanical Engineers. No doubt its details have been well considered, but in view of the results attained it does not seem calculated to excite any exuberance of enthusiasm among gas experts. The claims of the inventor to a bonanza in his method are based upon the expectation of extracting and recovering all the ammonia sulphate, of which it is expected a ton of slack will give nearly a hundredweight, or about four times as much as is ordinarily recovered in the manufacture of retort gas. It is expected that the ammonia will offset the cost of the coal. With this in view it requires no exceptional elasticity of the imagination to discover that the gas will "cost nothing" to make; but the fact is conveniently overlooked that a speculation based on the continuing stability of the value of sulphate of ammonia with five Mond gas plants in operation possesses a large element of uncertainty in which the chances would seem to be all against the speculator taking the risk. However, it seems to be unusually attractive. Parliament, on a favorable report of a committee of the House of Commons, has approved the application for the incorporation of a company with $5,000,000 capital to supply fuel gas to a district west of Birmingham, now containing 18 gas companies with plants in operation. It is part of the programme of the company to sell gas as low as 4 cents per thousand, and their charter powers limit them to 8 cents as a maximum. This, of course, would not be compensatory. They expect, however, to make so much money on ammonia sulphate and to produce so cheaply that they will be able to earn satisfactory dividends on the capital invested—a hope not fully warranted by any results thus far established by theoretical calculations.

It is impossible to resist the conclusion that the objective of the promoters of the Mond scheme is financial rather than industrial. There is really nothing to warrant confidence in the ability of the company to store and distribute their gas at the price proposed—or, indeed, at any price, considering its quality, which will permit it to enter into competition with coal for the only purposes for which it is claimed to be adapted. A lighting scheme may be concealed behind the undertaking, which would involve a material change in the process from that described, but in a consideration of the matter from the standpoint of the industrial value of the new gas we do not feel at liberty to take this into account. The field of usefulness of the fuel gas is restricted at both extremes. Small consumers cannot afford to use it, even at the low price named, and if they could their custom would not pay the producers. On the other hand the large consumer who would find gas economical can better afford to install a plant of his own, which he can do under any one of a dozen systems, and make his own gas for anywhere from 0.7 to 1 cent per thousand, than buy it in a large way from 4 to 8 cents per thousand.

The Mond process may or may not be highly economical and advantageous, but it is impossible to see that it offers any opportunity for profitable installation on the plan proposed. The fact that it will cost as much to distribute it as it would to distribute gas of much higher quality and much greater calorific value predooms it to an unsuccessful issue. Gratuitous advice is rarely welcome and still more rarely useful to the recipient; but we cannot resist the temptation to point out that what would seem to be the most profitable development of the Mond process would be to establish plants at the pit mouth, under the best practicable arrangements as to supplies of culm, make the gas, use it on the ground to drive powerful groups of gas engines coupled to dynamos and distribute electricity in currents of great volume and high tension for all purposes demanding power. The areas of convenient and economical distribution of such currents are steadily widening. It is no longer difficult to send them by practicable conductors from 60 to 100 miles in any direction. Not only is the cost of conductors very much less than that involved in the construction of mains large enough to convey great volumes of low gas, but the leakage loss is very much less. The only uses in which electricity cannot compete with coal are those in which gas would be at a still greater disadvantage. This, however, is not at all what the Mond Company propose. A well informed correspondent of the *Gas Light Journal*, writing from Salisbury, says:

"The cost of the plant required to carry out the scheme now in view would be, in round figures, £800,000, and when in full operation the daily output would be 84,000,000 cubic feet. The gas is, practically, attenuated coal gas, the diluents being nitrogen and carbonic acid, and it is to be sold at 2d. to large and 4d. to small consumers. This seems a whimsical distinction that in practice would be attended with much difficulty in the case of users whose consumption flickered under and over the border line. The terms small and large are used in a very different sense to that current among gas companies. We should call a user of 1,000,000 per annum a large consumer. But in regard to producer gas, even if in the Mond district he was a small consumer, the cash value of his custom would be only £17 per annum. So that a great deal turns upon whether we consider the quantity of gas taken or the cash value of the transaction. With such a cheap article statistics based upon the quantity sold are apt to be delusive and admit of a very extensive showing on a very small foundation, just as electricians, by selecting a small unit, the 8-candle lamp, as a means of expressing their working results, are able to make a very imposing front for a small business. A company who claim to supply over 10,000 lamps may have a gross income of £2000 or less. So it is better to go straight to the cash returns, and on this head the Mond Company, when in full operation, look for a revenue of £210,000 from sales of gas and for a net profit of £125,000, or about 15 per cent. So they evidently are looking forward to good times."

It is quite possible, as we have suggested, that behind the Mond gas undertaking lies a purpose broader and more promising to the shareholders than can be discovered in the plan as announced. This is the more probable for the reason that under present conditions the English capitalist is not chasing moonbeams to any great extent. What this purpose may be we frankly do not know, and it does not devolve upon us to inquire. The interest of the subject for the American reader is limited to the economic aspects of the claim that the company will cheapen production in every line of industry within the sphere of their beneficent operations by making one ton of coal do the work of five now burned under boilers.

One point has not, so far as we have observed, been brought out in the discussion of the advantages and disadvantages of the great modern consolidations. It is that full employment of the plants does not mark the point of minimum cost. All the consolidations count among their works establishments poorly equipped, antiquated and inefficient. When the demand forces these into activity, or, in other words, at the period of maximum production, these works must be run, in spite of high cost. The lowest cost is reached when only the best plants are in operation. It may happen, therefore,

that a consolidation may make more money, even under a slight reduction in prices, when its output is below the maximum.

Great Britain's Imports of American Pig Iron and Steel.

According to returns made by the Board of Trade of Great Britain the imports of pig iron from the United States for the first six months were 27,167 tons in 1901, as compared with 21,097 tons in the first six months of 1900. In January, 1901, the imports were 12,847 tons, in February 8766 tons, and dwindled down in June to 346 tons. For the year 1900 the total was 94,282 tons, as compared with 80,988 tons in 1899 and 76,356 tons in 1898.

The imports of "unwrought steel," which, we suppose, included billets and sheet bars, into Great Britain from the United States were 21,173 tons in the first half of 1900, 14,988 tons thereof being credited to June of that year. In the second half they ran up to 136,455 tons. During the first half of 1901 they aggregated 47,790 tons, of which 16,647 tons were imported in January and 16,405 tons in February. In June they had dropped to 412 tons. These figures show how the collapse in the spring of 1900 in this country was followed by heavy exports, which ran along during the second half of 1900 and continued during the first few months of the current year. Then deliveries fell off rapidly until now the business is practically suspended.

These figures illustrate well how statistics of shipments continue to reflect a trade movement whose force has long spent itself. After the revival following the election in November practically no business was done in selling pig iron or steel for export, and yet, naturally, the statistics might be, and have been, interpreted as proving that sales were still being made.

Money for the Autumn.

With the approach of the harvest season the resources in the way of ready money for handling the crops and the probable amount of grain to be required abroad become factors of very decided importance. The general stock of money, as stated by the Treasury, was $142,000,000 more on July 1 than it was on July 1, 1900; the amount in circulation was $115,000,000 more, and the rest of the increase was in the Treasury, where the maintenance of war taxation a couple of years after the war was over has resulted in piling up an enormous sum of money. Secretary Gage is keeping something over $100,000,000 on deposit in the banks, and has from time to time bought bonds when the prices at which they were offered favored the Government, in an effort to prevent a further accumulation of funds in the Treasury. He has already, and on several occasions, shown a disposition to buy bonds and advance interest freely if the condition of the money market seemed to make this desirable. Whatever objection may be urged to the purchase of bonds as a means of relieving the money market, there is no question but that it is far superior to leaving unrelieved a stringency partly due to the Government's exaction of a great deal more revenue than is necessary. In spite of the reduction of war taxes the surplus in the present fiscal year will be considerable.

The alarm over crops in this country is small compared with the alarm in Europe. Germany admitted a month ago that the crop would be very deficient as to wheat and only less so as to rye, and the wheat importations will be far above the usual amount. Estimates of the French crop have steadily declined till they have fallen more than 90,000,000 bushels under the usual consumption, and the later reports from Spain and Hungary are decidedly less favorable than the earlier ones, while the reports from Russia are getting worse, and for a large part of the empire, both in Europe and in Asia, the wheat conditions seem to be nearly as bad as they can be.

It is scarcely less than a certainty, therefore, that Europe will have to buy an unprecedented amount of grain, and even if spring wheat has been considerably injured since July 1 the entire wheat crop promises to be one of our largest. Hence Europe has got to send money here. Germany has been already reported as selling securities, especially Americans, for money with which to buy food. Just at the moment when certain European economists, mostly in the vicinity of Vienna, are trying to get up a European combination against American manufactured exports a situation arises which will compel Europe to buy an exceptionally large quantity of food in this country. Germany has been selling securities on account of the industrial crisis in the country, but apart from the financial disturbances the certainty that much more money than usual will have to be sent abroad for food has been prepared for. In meeting this demand from France and Germany we are likely to have little competition, and the arrival of a large amount of money from Europe is well assured, though much of it will not come till after the greatest need in this country has passed.

A New Shipyard at Chester, Pa.

CHESTER, PA., July 24, 1901.—Although no formal steps will be taken until next September to incorporate the new shipbuilding company to be located in Chester, all the preliminaries have been satisfactorily arranged and more than 90 per cent. of the $3,000,000 capital stock has been subscribed. The entire sum will be paid in before the plant is started. The site for the plant has been secured, and can be transferred to the new company as soon as they are officially organized. The piece of ground extends from the north side of Market street along the Delaware River front to the northern boundary of the city of Chester, at the mouth of Ridley Creek, and comprises some 200 acres, which is now held principally by State Senator William C. Sproul, president of the Seaboard Steel Casting Company, who is the most active of the citizens of Chester in pushing the new enterprise.

Chester will, within the next few months, see the last piece of vacant river front within the limits of this city turned to account, and work will be under way on a plant which will employ in the neighborhood of nearly 3000 hands. The new company's land has on its immediate front a depth of from 20 to 26 feet of water, and this really forms a well-swept channel along the entire front of the proposed shipyard. The Chester branch of the Philadelphia & Reading Railway on one side of the property connects the projected corporation with the several large steel and iron works below them. On the upper end is the private railroad of the Eddystone Mfg. Company, connecting with the Philadelphia, Wilmington & Baltimore Railroad, which could be utilized if the occasion required it. The new company will have no connection in any way with any other shipbuilding company on the Delaware River or elsewhere.

State Senator William C. Sproul is quoted as saying: "There will be nothing definite done in the way of organizing until after next month has passed, and those who are most interested have returned from their summer vacations. I am not willing to say as yet who are associated with me in this project. I will say, however, that the yard will be separate and distinct from every other yard in the country, and the company will engage in the general construction of vessels. This will be a

separate organization, and there is enough activity in shipbuilding to warrant the formation of such a corporation. While I believe nothing has been said to connect us with the John B. Roach Company, it may be well to specifically state at this time that there is no connection between them and us."

CORRESPONDENCE.

"The Passing of the Belgian Rod Mill."

To the Editor:—On my return from abroad and while only absent about ten weeks, I find great changes have taken place in the iron and steel industry, and to my mind the most important was the "Passing of the Belgian Rod Mill." The world was notified of this fact in an article published in *The Iron Age*, May 23, 1901.

Having been connected more or less with the development of the wire rod industry during the last 30 years, I naturally was very much interested in reading and carefully noting all that was said. I beg to differ from and question many of the statements made.

The Belgian rod mill consisted of one, and in some cases two, sets of roughing rolls placed about 30 feet in advance of a 9 or 10 inch finishing train, and while there are hardly any mills of this type in the country to-day, yet in Germany and Belgium it is still the prevailing type of mill for rolling rods. In and previous to 1883 the Belgian trains in the country—viz., Washburn & Moen, New Haven; Roebling & Sons and Cooper & Hewitt, both of Trenton, N. J.; Harrison Wire Company, St. Louis, and the Cambria Iron Company only produced about 12 to 15 tons a turn on the average and using only a 2-inch billet. But in 1883 the Cleveland Rolling Mill Company started a rod mill using the 4-inch billet and after having been in operation only two months produced over 36 tons in a single turn, and while to-day some of the best Belgian trains have reached an average of 40 tons per single turn, the present so called Garrett mills are producing 200 tons in the same time.

Surely such results are sufficient to give one style of mill a distinction above another. However, the world in general has, and has called it the "Garrett" rod mill, even if some of our scientific rolling mill engineers in this country fail to see the distinction.

Seeing that shortly after the starting of the so-called "Garrett" rod mill in 1883 all of the Belgian trains in this country (excepting the Washburn & Moen Belgian mill, which is now mainly used in rolling copper), suspended operation and were "scrapped," is it not fair to assume that the passing of the Belgian rod mill took place in 1883 instead of 1901?

But granting that all rod mills that do not embody the continuous mill feature are Belgian rod mills, let us take the number of such mills in operation and the amount they can produce and find the period where the passing of the Belgian rod mill takes place. To be brief, I will not enumerate in detail, but will state after careful research that there are to-day in operation, or could be operated, 12 mills of what the world in general calls the "Garrett" mill of the old type. The combined capacity of those 12 mills is at least 2400 tons per 24 hours.

I find that the rod mills of the continuous type—part of them designed and constructed by a well known Eastern firm—counting two mills not yet in operation, number only eight, and giving them their full capacity they can only produce 1200 tons in 24 hours. Where does the passing come in?

But why not fairly add to the 2400 tons made on the so-called old style Garrett mills the production of those mills which the world has been so kind as to call the Garrett mill of the latest type, and this is nothing but fair, seeing that even the roughing trains of these mills are not of a strictly continuous type. Then we have, counting one rod mill not yet in operation, six mills whose average output can be placed at 2000 tons in 24 hours. This added to the 2400 tons makes 4400 tons in 24 hours against 1200 tons made on the straight continuous type.

We find here that 100 per cent. more rods are rolled on what the nameless writer calls Belgian rod mills than on straight continuous mills—viz., 2400 against 1200, and nearly 400 per cent. more rods rolled on so-called Belgian and semicontinuous rod mills than on strictly continuous mills. This is certainly one of the most remarkable cases of passing away or driving out of existence ever recorded, and the quick resurrection based on actual facts a glorious one.

But let us see what was actually transpiring while this article was being set up in type. On page 10 of the above mentioned issue of *The Iron Age* we note the following: "The Kokomo Wire & Nail Company of Kokomo, Ind., will place an order at once for the machinery for a rod mill of 250 to 300 tons daily capacity." Owing to the writer's connection with the Garrett-Cromwell Engineering Company, who received the contract to design and engineer this mill, he is in position to know what type of a mill they intend adopting. It is not of the continuous type, nor of the part continuous type, but a straight out and out old fashioned Garrett rod mill, or what some scientific engineers call a Belgian rod mill. Also on page 11 of the same issue there is an article to the effect that the John Wales Company of Boston are about to erect a rod mill, and this also is not of the continuous type. Does this seem like the passing of the Belgian rod mill?

But this is not all. During the same week the Garrett-Cromwell Engineering Company closed a contract for two of the largest producing rod mills ever built so far, and these rod mills are for men who in the near past have been most prominently connected with the wire and wire rod business in this country. I will only add to this that the type of mills selected was not of the continuous type.

The above implies that either all fools are not yet dead, or there is still some merit in other rod mills outside of the straight continuous type. I will close with correcting some other mistakes in this remarkable article.

It does not take twice the power to roll rods on a Belgian train that it does on a continuous train, both mills starting with a 4-inch billet. Facts do not bear out the statement that as good a rod for drawing purposes can be obtained from a continuous as from a Belgian rod mill. Evidence to prove this can be found from any outside wire mill men, who have used rods made on both type of mills. In fact, decision in favor of a Garrett mill was made recently on account of this. As to the general quality of rods made on both type of mills—viz., continuous and looping, to suit the wire drawer—it is safe to say that by far the majority of complaints as to shape, &c., is against the rods rolled on a continuous mill.

A rod weighing 150 pounds is much preferred for general purposes to a 300-pound rod, or why, as the writer states, cut the 300 pounds in two for shipment?

While the loss in oxidation is less on a continuous mill than on a Belgian or looping mill while rolling, yet the loss in the cleaning is greater on rods rolled on a continuous mill, as more acid is used and more time is required to bake the acid out of the rods.

As to rolling rods hot being a benefit, if so, why cool through a liquid bath, and it might be said right here that without this cooling of the rods in this manner on a continuous mill it would not hold the position it does to-day among rod mills. This is as essential to its success as the Mushet process was to make the Bessemer process a success.

But as a matter of fact, talk or discussion as to the merits or demerits of the so-called Garrett mill is entirely unnecessary, as it began to talk for itself 16 years ago, and is talking for itself to-day. Evidently a better substitute has not yet been found, judging from the amount of rods produced on this type of mill and the number now in course of construction. Granting the engineering skill in the continuous mills be most remarkable, and mechanical perfection almost reached in rolling; let it be conceded to be the most remarkable rolling machine in the world, and no one admires its good points more than the writer, and he also admires the perseverance and mechanical skill of those who have brought it to its present state of perfection, still there

must be "a fly in the ointment" somewhere, or it could not be at the tail end in production of rods in this country; and this is more remarkable from the fact that the original patent on a continuous mill had run out before the advent of the so-called "Garrett" mill.

WM. GARRETT.

CLEVELAND, OHIO, July 19, 1901.

The Machinists' Union and the Piece Work System.

WASHINGTON, D. C., July 23, 1901.—The International Association has published the annual report of President O'Connell, which was prepared for submission to the convention recently held in Toronto. It is a lengthy document, and contains passages of special interest to employers as indicating the line of the International Association's probable activities during the coming year. In tone and general character it reflects clearly the present attitude of the association toward the machine shop owners and especially toward the members of the Metal Trades Association, and it outlines the contest which the Machinists' Association will make in the event that a revival of the Chicago and New York agreement is attempted when the present strike is formally declared off. The intention of the International Association either to compel employers to abandon the piece work system or to thoroughly unionize their shops so that all the rules relating to piece work may be dictated by the unions, is distinctly set forth by Mr. O'Connell as follows:

The Piece Work System.

"As a result of our deliberations at Buffalo, Section 33 was added to Article 12, constitution of subordinate lodges, giving judicial officers discretionary power to treat with employers regarding piece work. This law has been practically useless and absolutely no progress has been made in accordance with Section 3. I say again, as I said two years ago, our present system of fighting the piece work question is absolutely suicidal. From statistics gathered, I find during the past two years we have prevented the introduction of piece work in 114 shops, affecting 2800 machinists. From the same reports I find that piece work has been introduced in 49 shops affecting 3653 machinists. You will see by the above figures that notwithstanding we prevented piece work in more than double the number of shops where it was introduced, yet a larger number of machinists were affected by the introduction of the system. At least three-fifths of the trouble we have with manufacturers results over questions of piece work and premium plans. It is by no means due to trouble with our employers, but because the men of our trade to a very great extent are desirous of accepting piece work or premium plans and refuse in a great number of instances to join our association on account of our opposition to this method of performing work. In my opinion, one thing or the other must be done. We must either accept piece work on condition that the employer will thoroughly unionize his shop in order that we may be in a position to fully control the system, or we must open and above board declare war against the entire piece work system, and refuse to allow our members to work it whether it has been in operation before or not."

The extent to which the International Association is disposed to go to "force" so-called "unfair" firms to settle their differences with the order may be gathered from the following extract:

"In order that a settlement may be forced with the above firms it is necessary that a more live interest be taken by our members in the cities where these firms are located. Unless the local members interest themselves in prohibiting the sale of the manufactured articles put upon the market the simple placing of the firms upon the unfair list will not bring about a speedy adjustment."

An idea of the lines along which the International Association will seek to amend its agreement with the Metal Trades Association, should that agreement be revived, may be gathered from the following statement:

The Open Shop.

"Our New York agreement contains two sections to which I am opposed. The first paragraph of that portion to which I refer under the heading 'Employment and Hours,' reads as follows:

"'No discrimination shall be made against union men, and every workman shall be free to belong to a trade union, should he see fit. Every employer shall be free to employ any man, whether he belong or not to a trade union. Every workman who elects to work in a shop will be required to work peaceably and harmoniously with all fellow-employees, whether he or they belong to a trade union or not. He shall also be free to leave such employment, but no collective action shall be taken until any matter in dispute has been dealt with under the provisions for avoiding disputes as per the Chicago agreement, dated March 17, 1900, signed March 31, 1900. The National Metal Trades Association does not advise its members to object to union workmen or give preference to non-union workmen.'

"The second portion of the agreement to which I am opposed is the second paragraph in the section headed 'Machinist,' and reads as follows:

"'It is understood that the question of competency is to be determined by the employers. Since the employers are responsible for the work turned out by their workmen, they shall, therefore, have full discretion to designate the men they consider competent to perform the work, and to determine the conditions under which it shall be prosecuted.'"

As the "open shop" and the right of the employer to determine the competency of his employees are vital principles in the agreement it is difficult to see how a satisfactory adjustment could be reached without them. In another part of his report Mr. O'Connell urges the association to co-operate with other labor organizations in securing a passage by Congress of the so-called eight-hour bill, which has been pending for several years. Mr. O'Connell also calls attention to combinations which he says have recently been formed among manufacturers covering several divisions of the machinists' trade, and after mentioning several he adds:

"My idea in pointing out the above combinations is to show the necessity of securing greater control of our trade in order that we may be in a position to adjust our differences in a more general manner rather than deal with the individual firms, as the tendency of the times is organization and association."

Secret Service.

The organization of a secret service system in the ranks of the association and its special aim are thus set forth by Mr. O'Connell:

"Since our last session, and especially within the past six months, a very great effort has been made by certain manufacturers to secure through the J. K. Turner Detective Agency inside information in connection with the workings of organized labor. Especial attention has been given our association by this man Turner, and he has succeeded in employing a few machinists throughout the country, who furnish him with information relative to the business of our organization. With the assistance of others, whose names I am not at liberty to divulge, we secured evidence which led to the detection of some of the informers within our ranks. . . . It is to be deplored that we have a few machinists among us who so far forget themselves as to sell their honor and manhood for a mere mess of pottage to those who unquestionably detest them, and who have no more respect for them than has any honest man for an informer. In order to counteract the injury which has been inflicted upon our association by this bureau, I inaugurated a secret service system which has been working with excellent results."

W. L. C.

At Youngstown, Ohio, application has been made to the courts for a dissolution of the Brown-Bonnell Iron Company. This concern were taken over two years ago by the Republic Iron & Steel Company.

The Machinists' Strike.

Odds and Ends.

At the present writing the main point with the strike of the machinists is not whether they have gone back, but the future of their organization. Just exactly how much the union has gained or lost remains to be written. That it has gained much is doubtful. The recognition of the union as a governing body has not been accomplished. The governing body of the machinists' union is defeated. That it will revive we have no doubt, and that it will be resuscitated with more common sense behind it than it ever displayed during the present brush may be taken for granted. During the past three weeks the principal incidents have resulted from injunctions from the courts, each injunction being, apparently, a more comprehensive and sweeping document than the one preceding it.

Boston.

A press dispatch of July 18 says:

"The trouble between the American Tool & Machine Company and their striking machinists has reached the courts. This morning Judge Bell in the Equity session of the Superior Court heard a motion for a temporary injunction, made by the American Tool & Machine Company, to restrain G. E. Nickerson and other officers of the Hyde Park Lodge of the International Association of Machinists from interfering with the plaintiff's business by means of picketing, patroling and persuading.

"Judge Bell said he would take the stipulation of counsel that there should be no illegal acts done pending a hearing. That each side should have the right to apply for an injunction if illegal acts are done, and that meantime a master should be appointed to hear the evidence and report at once to the court."

Ansonia and Derby.

Dispatches from Ansonia and Derby, Conn., report as follows: "Judge Edwin B. Gager of the Superior Court for New Haven County has granted one of the most sweeping injunctions ever issuing from a Connecticut court. The injunction restrains the strikers from in any way interfering with the new men employed, from boycotting, intimidating or annoying them by noise, from congregating, posting pickets or doing anything striking employees frequently do when new men are brought in to fill their places.

"In the injunction John W. Kelley and Stephen H. Charters and 149 other individuals are named as defendants, and the Sheriff is directed to attach their property in the sum of $25,000. Ansonia and Alert Lodges, International Association of Machinists, and the parent body of the United States, the Carpenters' and Joiners' Union, through their officers, are named also as defendants. The petition says:

"'And that in furtherance of said conspiracy the defendants have for a long time and now are causing the said pickets to use threats, personal violence, abusive language, coercion and duress to and toward the workmen who are employed by the plaintiff on their said premises, and to workmen and customers approaching said premises or coming to said city to transact business with this plaintiff; to workmen leaving the premises of the plaintiff and to persons approaching or leaving said factory to furnish food and supplies for the support of this plaintiff's operatives. In further pursuance of said combination and conspiracy, the defendants have by threats, persuasion and intimidation prevented many persons from dealing with the plaintiff and have induced by threats and by intimidation tradesmen from furnishing food and supplies to the workmen in the employ of the plaintiff and to their families. And have by persuasion and intimidation prevented physicians from attending upon such of said workmen as have been sick, and have threatened to ruin the business of and to boycott such tradesmen and dealers as might furnish supplies to the workmen aforesaid, and have endeavored to boycott the plaintiff and to boycott persons who dealt with them or with their employees.

"'And that in further pursuance of said conspiracy the defendants between May 20, 1901, and the date of this complaint have sent the defendant Charters and others to New York to watch the Grand Central Depot in the city of New York to prevent workmen coming to seek employment with the plaintiff from so doing, and that the defendant Charters made arrangements with certain confederates of the defendants in New York to watch the different labor agencies and the said station and to prevent the plaintiff from obtaining laborers and employees, and have by this means prevented the plaintiff from obtaining employees. The plaintiff claims $20,000 damages, a perpetual injunction restraining the defendants from doing the acts aforesaid.'

THE JUDGE'S ORDER.

"After stating that the facts set forth above are duly attested Judge Gager's order is:

"'These are therefore by the authority of the State of Connecticut to command and enjoin you, the said defendants, and each and every one of you, and the said International Association of Machinists and your other agents, servants and employees, each and every one of you, under penalty of $5000 to wholly and absolutely refrain from in any manner interfering with the employees of the plaintiff now in their employ.

"'And from in any manner interfering with any person who may desire to enter the employ of the plaintiff, by way of threats, persuasions, personal violence, intimidation or other means calculated or intended to prevent such persons from entering or continuing in the employ of plaintiff or calculated to induce such persons to leave the employ of the plaintiff; from boycotting the plaintiff and the plaintiff's workmen, either by threats, intimidations, persuasion or otherwise; from interfering, intimidating, boycotting or threatening in any manner any person or persons for the purpose of inducing such person or persons not to deal with or do business with the plaintiff or not to deal with or furnish supplies to the plaintiff's workmen; from congregating or loitering about in the neighborhood of the premises of the plaintiff or in other places with the intent to interfere with the employees of the plaintiff or the prosecution of their business or to interfere or obstruct in any manner the business or trade of the plaintiff.

"'From picketing or patrolling the factory or other property of the plaintiff or causing said premises to be picketed or patrolled or from loitering about the factory of the plaintiff or from making loud or boisterous noises in the vicinity thereof or from causing any of such acts to be done by others or from persuading or assisting any or counseling or advising any such acts.

"'From interfering with the free access of the employees of the plaintiff to the plaintiff's premises and their place of work and the free return of said employees to their places of business or their home.

"'From all concerted action or otherwise doing any act or causing any act to be done or causing noises which would interfere in any manner with the employees of the plaintiff, or their business, or property.

"'From giving any instructions or orders to committees, association or otherwise, for the performance of the aforesaid acts or threats hereinbefore enjoined; from in any manner whatever impeding, disturbing or interfering with the regular operation and conduct of the business of the plaintiff or of employees now in the employ of the plaintiff or that may hereafter be employed by it until the first Tuesday of September, 1901, and until this Court shall make further order in the premises.'"

EFFECT.

The effect of this injunction has been to restrain the striking machinists, their unions and their sympathizers from interfering with nonunion men at the Farrell foundry and to check what promised to be a serious outbreak.

Bench warrants were secured on the 18th inst. from Judge Shumway of the Superior Court for the arrest of Stephen Charters, president of the Carpenters' and Joiners' Union and President of the Board of Aldermen; Jason Wright, a member of the Machinists' Union, and Martin Driscoll, president of the Painters' Union, three strikers from the Farrell Foundry & Machine Company in Ansonia, on a charge of conspiracy to intimidate. The warrants were served in Ansonia. When court was

opened bonds were fixed at $1000 in each case, when the case was adjourned without date.

New York.

Things in New York and vicinity are assuming the usual aspect. The machinists of the Babcock & Wilcox Boiler Company have returned to work with no concessions whatever by the concern. At Plainfield and Ampere work is going on as before the strike.

Dayton, Ohio.

A press dispatch to the *Sun* from Dayton, Ohio, July 18, states:

"The metal polishers, as a union or individuals, will have to pay $586 as costs in the injunction suit brought against them by the Manufacturers' Association. Execution was issued this afternoon by County Clerk C. W. Bieser against the Metal Polishers' Local Union No. 5, and the several hundred defendants who were permanently enjoined at the instance of the Dayton Mfg. Company from in any way interfering with their business, directing and commanding Sheriff Kershner to levy upon any of the goods and chattels of the defendants or upon any of the lands or tenements of the defendants to satisfy the claim for costs. The costs were incurred in the hearing of the injunction suit, and were in favor of the clerk, the sheriff and witnesses. The fees of the witnesses alone amount to about $102. The costs stand as a judgment against the union and the defendants who were enjoined by Judge Kumler. The costs are a lien upon property, and building associations will not lend money upon property so encumbered."

Scranton, Pa.

The machinists' strike in Scranton is off. The men returned to work last Monday, with no concessions.

The Strike in the Sheet, Bar and Hoop Mills.

The great strike in the union sheet, hoop and bar mills of the American Sheet Steel Company and the American Steel Hoop Company, which was declared on Saturday night, July 13, by President Shaffer of the Amalgamated Association, shows no signs of settlement, but, on the contrary, both sides are making preparations for a long struggle. Emissaries of the Amalgamated Association have been busy in the past week working among employees in nonunion mills of the above two concerns, trying to get them to go out on a strike, but so far their efforts have met with little success. It is true that in the Pittsburgh district the Painter works, Lindsay & McCutcheon and Star works of the American Steel Hoop Company are still idle in nearly all departments, the men having gone out on strike in sympathy with the men from union mills. The Monessen works of the American Steel Hoop Company are also partially closed, so that the only plant running full belonging to the American Steel Hoop Company is the Portage works at Duncansville. One or two other works of this concern are in partial operation only.

In the sheet mills the center of interest in the week has been the Wellsville works of the American Sheet Steel Company. This plant has always been nonunion, and two or three days after the strike occurred the Amalgamated Association succeeded in closing it down in nearly all departments. The mill did not remain idle long, however, as a day or so after it was closed Persifor F. Smith, manager, made an address to the men, setting forth how the company had always treated them well, paying them the highest rate of wages and giving them employment when other mills were idle. Mr. Smith's address to the men had a good effect, for on Thursday morning nearly all the men returned to work, and at this writing the Wellsville works are running practically full. The fact that Mr. Smith's efforts to start this plant were so successful had the effect of disheartening many of the men who had joined the Amalgamated Association, and they severed their connection with it and returned to work. Strenuous efforts have been made in the past week by the Amalgamated Association to get the men in the other nonunion sheet mills of the American Sheet Steel Company, at Vandergrift, Apollo, Leechburg and elsewhere, to go out on a strike, but without success. At this writing all the nonunion sheet mills are running to full capacity and with no signs of discontent among the men. The Wood works, at McKeesport, have been idle for two weeks or more undergoing extensive repairs. These have about been completed, and this works, which is the second largest owned by the American Sheet Steel Company, will be started this week. The management anticipate no trouble in getting the men to return to work. With all their nonunion mills running, the American Sheet Steel Company are able to turn out close to 60 per cent. of their entire capacity.

As far as the tin plate mills are concerned there has been no change in the situation. All the tin plate mills owned by the American Tin Plate Company, with the single exception of the Monessen works, at Monessen, are idle, and the company have made no effort to start them up. The American Tin Plate Company are now receiving the product of the ten mills of the Sharon Tin Plate Company, and this has helped out on contracts.

No effort has been made by the Amalgamated to call out men in other mills controlled by the United States Steel Corporation, nor is it believed there will be. The statement of J. P. Morgan last week, that the course pursued in the strike by the management of the various companies controlled by United States Steel Corporation had his entire approval, and that there would be no compromise, is construed to mean that United States Steel Corporation are in the fight to stay to a finish and that any overtures for settlement must come from the Amalgamated. All sorts of statements, and threats as well, are being made by President Shaffer and his followers, but these have had no effect. The officials of the Amalgamated are commencing to realize that when they went into a fight with the United States Steel Corporation they were meeting the strongest organization they have ever encountered, and the belief is spreading that the Amalgamated made a serious mistake when it went into this fight.

The shut down of so many sheet mills has caused a sharp advance in prices of black and galvanized sheets, and jobbers who can ship out from stock have been able to sell No. 27 black sheets as high as 3.25c. to 3.35c., and No. 28 from 3.35c. to 3.50c.; galvanized sheets, on which 70, 10 and 5 off was quoted by the American Sheet Steel Company before the strike, are selling readily in carloads as high as 70 and 10 off, and in some cases where reasonably prompt delivery is made, 70 and 5 has been done. Hoops and cotton ties have also shown a sharp advance, and sales of hoops for prompt delivery are at 1.85c. to 1.90c. in carloads and up to 2c. in small lots. Cotton ties have also advanced sharply, but steel bars have not as yet been affected. At this writing the strike promises to last a considerable time yet, all reports to the effect that a settlement would be reached in a short time to the contrary notwithstanding.

PITTSBURGH, PA., July 24, 1901.—(*By Telegraph.*)—Much comment is being made over a secret conference relating to the strike, said to have been held in Pittsburgh Tuesday night, at which President Shaffer and other Amalgamated officials were present. If such a conference was held it can be safely said that none of the officials of the United States Steel Corporation attended it. The opinion is expressed everywhere that the Amalgamated Association has made a monumental blunder in going into this struggle with the United States Steel Corporation, and that it is bound to be defeated and the organization disrupted. President Shaffer has been looked upon as a very weak leader, especially since the tangles he got the Amalgamated into last year, when the scales were up for settlement, and now that he

has again got the association into what will be a losing fight, the men are beginning to realize their weak position. Attempts made to get the men out at the Wellsville Works and also at the Monessen Works of the American Tin Plate Company have been futile. The Monessen Works are running full and the Wellsville Works nearly so.

The officials of the United States Steel Corporation are not paying much attention to the strike now, nor are attempts being made to get the idle mills started. It is realized that on account of the hot weather the men desire to rest for a month or so, and some repairs are necessary at the idle mills, and conditions are not likely to show much change for some time. When cool weather comes the United States Steel Corporation will take up the strike in a vigorous manner and adopt such measures as will soon end it. While nothing official has been given out it is pretty certain that the Amalgamated could not get as favorable terms now as were offered when the strike was declared. Indeed, it is possible that the United States Steel Corporation will never again consent to go into conference with the Amalgamated Association as a labor organization.

An Important Order for Chain Cables.

The Newhall Chain Forge & Iron Company, manufacturers of hand made dredge and steam shovel hoisting chains, close link and stud link yacht and ship cables, special steel loading and skidding chains, shackles, swivels and other forgings, with offices located in the Havemeyer Building, 26 Cortlandt street, New York, have just secured the contract for the making of the large anchor chain cables required by the Eastern Shipbuilding Company of New London, Conn., for the two large steel steamers which the latter company are building for the Great Northern Steamship Company and Northern Pacific Railroad. These steamers will be the largest freight carrying steamers ever built in the world and are designed for the foreign carrying trade between the United States and the Orient.

The chain consists of 660 fathoms of 3 3-16 inches diameter iron and 300 fathoms of 1⅞-inch diameter iron, stud link cables, the former being constructed in shots of 15 and 30 fathoms each, which are connected with 3 7-16-inch shackles and swivels. Each link of this large sized chain will measure approximately 19½ inches in length and about 11½ inches in width, and will weigh about 100 pounds to the foot; so that the total tonnage represented by this one order will equal about 215 tons.

The 3 3-16-inch chain will be the largest ever attempted in this country, if not in the world. The Newhall Chain Forge & Iron Company represent in this order the expert chain maker, Eli Attwood, formerly of Staffordshire, England, and now the president, general manager and superintendent of the Lebanon Chain Works, in whose shops this chain will be made. The chain will be inspected and tested under the supervision of inspectors of Lloyd's Registry of England.

PERSONAL.

F. J. Llewellyn has been appointed manager of the Gillette-Herzog plant of the American Bridge Company, at Minneapolis, Minn., to succeed William Gillette, who resigns August 1.

F. H. Buhl, former president of the Sharon Steel Company of Sharon, Pa., has resigned the presidency of the Sharon Ore Company and as a director of the Sharon Steel Company, and will retire from business cares.

W. H. Singer of the Carnegie Steel Company, Pittsburgh, has sailed for Europe.

Julius Jonson has resigned the superintendency of the Starin Ship Yards & Iron Works at Port Richmond, S. I., to establish himself as contracting and consulting engineer at 32 Broadway, New York.

S. Taylor Wilson, who has been in charge of the engineering department of Tippett & Wood for a number of years, has been elected a director and made vice-president of the company.

J. W. Howgate of Schenectady, N. Y., has been appointed superintendent of the American Locomotive Company's plant at Manchester, N. H.

J. H. McConnell of Omaha, Neb., has been appointed superintendent of the Pittsburgh Locomotive Works.

Francis E. Weston, president of the Keystone Drop Forge Works, Philadelphia, Pa., will sail for Europe on the "Kaiser Wilhelm der Grosse," on the 30th inst. Mr. Weston will make an extended trip of several months' duration, visiting Germany, Italy and France.

A. T. Shoemaker, long connected with the iron trade, has returned from Europe and for the present is located at Rooms 1206 and 1207 Broad Exchange Building, New York. He is introducing the Dinas silica brick, manufactured by Stephens & Co. of Kidwelly, South Wales.

George A. Mason, who has been prominent in the Western wire trade for many years, has returned to Chicago after a sojourn of over four months in Europe.

L. F. Phipps, president American Frog & Switch Company, Hamilton, Ohio, sails on July 30 for a two months' tour abroad.

The Allis-Chalmers Company have organized their Scranton and Wilkes-Barre branches by making L. F. Bower general manager, W. N. McClaren general superintendent, H. W. Rowley mechanical engineer and M. L. Wilcox local treasurer. All held similar positions with the Dickson Mfg. Company.

MANUFACTURING.

Iron and Steel.

The Mahoning Mfg. Company, Youngstown, Ohio, have placed a contract for their new buildings with the Columbia Bridge Company of Pittsburgh. The contract for the electrical machinery was given to the Westinghouse Electric & Mfg. Company, and the boilers and machinery were also given to a Pittsburgh concern. The new works, which are to make bolts and rivets, are expected to be completed late in the fall.

A gas producer and two gas heating furnaces are being built in the Wheatland Rolling Mills, at Sharon, Pa. This plant will be started before long in the manufacture of skelp.

The Alcania Company of Pittsburgh have applied for a charter of incorporation and propose to manufacture sheets, wire, &c. This concern have a small tin plate plant running at the present time in the Pittsburgh district.

One of the furnaces of the Woodstock Iron Company at Anniston, Ala., has blown in.

The Sharon works of the Republic Iron & Steel Company, at Sharon, Pa., have been started up in the manufacture of iron bars. The strike in the mills of the American Steel Hoop Company has resulted in a large tonnage of iron and steel bars being placed with the Republic Iron & Steel Company, and the mills of that concern in the Central West and South are crowded with orders. Several plants that have been idle for some time have been fixed up and started.

Hattie H. Ensley, one of the Sheffield, Ala., furnaces of the Sloss-Sheffield Iron & Steel Company, has blown in.

H. H. Ginsburg, 372 Bullitt Building, Philadelphia, representing the reorganization trustees of C. R. Baird & Co., has purchased the plant of the Elmira Steel Company, Elmira, N. Y., for $100,600.

The Marshalltown Iron & Steel Company of Marshalltown, Del., are producing sheets from No. 16 to No. 28 by the loose rolled plan, which gives them an even black finish. The mills are kept constantly employed in serving a limited number of customers who are anxious to secure their produce. Their factory for making 32 sizes of sheet iron dripping pans and stove pipe and elbows is also kept running full.

General Machinery.

At a recent meeting of the stockholders of the Youngstown Foundry & Machine Company, at Youngstown, Ohio, stock and cash dividends were declared. It was also decided to increase the capital stock of the company from $50,000 to $100,000, to enlarge the plant. An addition 100 feet long will be built to the foundry, and two large electric cranes installed. The old officers and board of directors were re-elected. Thomas Parrock is president; W. J. Wallis, vice-president and manager, and T. J. Williams, secretary and treasurer. The business of the Youngstown Foundry & Machine Company was established in 1893 and has steadily grown since that time. The concern are manufacturers

of light and heavy machinery, castings of every description, and also of sand and chilled rolls, of which they make a specialty.

Owing to the confined limits and the necessity for rebuilding and enlarging their main shops, the Delaware, Lackawanna & Western Railroad Company are contemplating the removal of their shops at Scranton, Pa., to Binghamton, N. Y.

The Turner Brass Works, who now occupy a building at 122 Kinzie street, Chicago, have made arrangements for the erection of a special building for their purposes, on the southeast corner of Michigan and Franklin streets, Chicago. The building will occupy 80 feet on Michigan street and 100 feet on Franklin street, and will be six stories in hight, with a basement. This building is to be of the best type of mill construction, with the floors used for the foundry and electro-plating departments of fire proof construction. Fire proof vaults will also be built for the storage of patterns. The new building is to be ready for occupancy by November.

The Van Buren Machine Company have been incorporated at Marion, Ind., with a capital stock of $15,000. The directors are F. S. Haynes, S. G. Robinson, L. D. Shauer, Thomas McCambridge and N. E. Duckwell.

The Industrial Works, Bay City, Mich., will shortly build a new erection shop to accommodate the tremendous press of work which the new company are now running. The building will be a one-story frame shell, 100 x 40 feet, and the space now devoted to erection work will be used for manufacturing machinery. The building will be rushed to completion within two weeks from the time the bids are opened. The works were never so crowded with orders as at present. The new power house, which when completed will be one of the finest in the country, is rapidly approaching completion and its construction is being pushed with all possible haste.

The George A. Hogg Iron & Steel Foundry Company, Pittsburgh, manufacturers of rolling mill machinery of all kinds, are equipping the Humbert works of the American Tin Plate Company, at Connellsville, Pa., with the Freeman patent annealing furnace charger.

The National Elevator & Machine Company, Honesdale, Pa., have completed their new buildings, their main shop now being 225 x 50 feet, of two stories. It has been equipped with a number of new machines. The transmission of power has been changed from belt to electric motors, with a new lighting and generating plant. They have also put up a new foundry, 100 x 38 feet. It is contemplated to purchase additional land for the erection of buildings to institute a new line of manufacturing, the character of which is yet undecided, the object being to keep their hands employed in the event of manufacturing in their present branches becoming slack. Elevators have been shipped by the company to the Argentine Republic, Brazil and Peru. The domestic trade has gone far beyond what they would have been able to meet with their old facilities.

The J. H. Sears Company have been incorporated with a capital stock of $10,000 for the purpose of manufacturing and dealing in machinery, by Judah H. Sears of Boston, Henry S. Potter, Jr., of Brookline, and George T. Spear of South Portland.

Elbridge R. Johnson, manufacturing machinist, Camden, N. J., is enlarging his plant by the erection of a substantial addition. New machinery is being installed and more men are being employed as fast as places can be fixed up for them to work.

The Kelly & Jones Company of Pittsburgh have bought another piece of ground adjacent to the Singer, Nimick & Co. building on Water street. The two present buildings will be torn down and a large building erected, to be used as offices and warehouse by this concern.

The Hassett Machine Company, Kearny, N. J., have organized for the manufacture of double cylinder Parkhurst burr-picker, single and double burring machines and feed rolls, Hassett's improved side drawing machines for first and second breaker cards, with or without bank creels, automatic card and picker feeds, &c. W. H. Hassett is president.

Engines and Boilers.

The John O'Brien Boiler Works, St. Louis, were damaged by fire to the extent of $75,000 or more on the 14th inst. A large two-story wood and iron building, containing much valuable machinery, was completely destroyed. The works were crowded with orders at the time, and the fire was therefore most inopportune.

The Brown-Corliss Engine Company, who are building a large plant for the construction of heavy engines at Western Union Junction, Wis., own a large amount of land at that place, on which they are arranging to locate other manufacturing interests and thus establish a new industrial town. It is reported that they have arranged with parties who will organize a company with a capital stock of $100,000 and will locate a large car wheel factory on a portion of the tract.

The new boiler works of McDermott Bros., at Allentown, Pa., have started up. The South Bethlehem plant, which was partly destroyed by fire some months ago, will be given up and all the firm's interests will be concentrated at the new plant.

Buildings and Bridges.

The Riter-Conley Mfg. Company, Pittsburgh, again deny that they have bought a site of land on the Ft. Wayne Railroad, below Pittsburgh, for the purpose of building a plant for the making of steel barges.

The Flour City Ornamental Iron Works, Minneapolis, Minn., architectural iron, wire and art metal goods, have closed a deal for two acres of ground on Twenty-seventh street, South, and Twenty-seventh avenue, upon which they will erect a foundry 50 x 150 feet. All the machinery required and cupola have been ordered. Negotiations are pending to dispose of the present quarters, and if this is done the concern will erect another building, 60 x 150 feet, two stories.

The Pittsburgh Construction & Engineering Company of Pittsburgh have been organized with a capital of $20,000. The directors are A. R. Bassett, J. G. Bassett and G. T. Hilderbrand. The concern will do a general constructing and engineering business.

Machine Tools.

The Western Machine Tool Works have decided to remove from Grand Rapids to Holland, Mich. They have been given a free site and the loan of money to erect buildings. They will proceed at once to erect a building 50 x 100 feet for a machine shop and another 35 x 45 feet as an engine and boiler house and a wash room for employees. These facilities are expected to be enlarged in the near future. The company manufacture iron-working machinery, consisting of radial drills, horizontal boring machines, &c. These works are owned by the same parties who operate the Valley City Machine Works in Grand Rapids, manufacturing wood working machinery, but they will not remove the latter plant.

The Pond Machine Tool Company of Niles-Bement-Pond Company, at Plainfield, N. J., are to enlarge their plant by a 150-foot addition to the foundry and a 100-foot addition to the machine shop. It is probable that the power house will also be considerably enlarged. All the necessary machinery will be built at their own shops.

Binsse & Hauschild, doing business as the Newark Machine Tool Works, at Newark, N. J., have incorporated under the name of the Binsse Machine Company, with a capital of $100,000. The business and plant will be transferred to the new company and the manufacture of machine tools will be continued as heretofore under the same management.

Foundries.

Wm. Rotermund has established a foundry at Eureka, Cal. He will be assisted by his father, John Rotermund.

A movement is under way at Augusta, Maine, to form a stock company for the purpose of establishing an iron and brass foundry in that city. Frank I. Clark, machinist, is promoting the scheme.

The Crane Company have begun the construction of a large foundry, which is to extend from 219 to 239 South Jefferson street, Chicago. It will cover a ground space of 90 x 237 feet and will be constructed of pressed brick and stone.

The Wisconsin Foundry & Mfg. Company, composed of Milwaukee parties, have incorporated with a capital stock of $10,000 and will locate a plant at Racine Junction, Wis.

The plant of the American Steel Casting Company, at Sharon, Pa., has been crippled in its operation to some extent by a strike of the men.

The Norway Iron & Steel Company, manufacturers of steel and malleable iron castings, intend to considerably improve and enlarge their plant at York, Pa. Recently the foundry has been enlarged and the facilities in the annealing department increased. The company now have sufficient orders on hand to keep their plant running full for four months.

Hardware.

Wilcox, Crittenden & Co., Middletown, Conn., are about to build an annex to their present plant. The plans call for a building 65 x 225 feet, four stories high. The main floor will be 12 feet high and will be used as a shipping room. The second floor will be 16 feet high and will be used entirely as a machine room. Along the entire length of the roof will be a monitor skylight, which, besides furnishing light will also serve as a ventilator. In addition to the light from the roof, the sides and ends of the building will be almost entirely of glass. Each floor will be provided with ample accommodations for the employees, such as wash-rooms, water-closets, lockers, &c. The building will be equipped with elevators, electricity for power and light, telephones, pneumatic tubes, &c., and will be heated by steam. The structure will be of brick, and made as near fire proof as possible. When completed it will be one of the lightest and best equipped buildings for manufacturing purposes in the city.

Business with the Frost Wire Fence Company, Cleveland, Ohio, has grown to such an extent that the present capacity of 20 miles of wire fencing a day has been found inadequate. They have accordingly purchased a new manufacturing site, Lake street, near Marquette, where the shipping facilities are of the best. Their new two-story building will be completed and ready for occupancy not later than August 15, and will have a capac-

ity of 60 miles of fencing per day. The site acquired by the company is also large enough to permit them to increase their output threefold in the future if necessary. The members of this company have been identified with the iron and steel industry and the manufacture of wire fencing for the past 12 or 15 years. The business was incorporated on May 27, 1896, at which time they were located in Columbus. Owing to the fact that Cleveland possessed advantages over Columbus for the manufacture of wire fencing, the company removed to that city in June, 1897. They cordially invite the trade when in Cleveland to come and inspect their new factory.

The Scranton Bolt & Nut Company, Scranton, Pa., have been engaged to their full capacity since they commenced operations in the fall of 1899. They have installed a considerable amount of new machinery this year and have more in course of construction to meet the largely increased demand. The capacity of the works is 12,000 tons per year, consisting of standard refined bar iron, machine bolts, lag screws, coach screws, hot pressed nuts, track bolts of iron with cut threads and steel with cold rolled threads. Their trade extends over the whole country. They also do considerable export trade in bolts and nuts only. They employ 325 hands. The recent strike of machinists in the shops is over, a large number of the men having returned to work.

The business done by the American Safety Lamp & Mine Supply Company, Scranton, Pa., during 1900, was considerably larger than that of any previous year, and so far this year there is a still further increase.

The Stewart Iron Works of Cincinnati, Ohio, are crowded with business in all departments. They recently completed the iron and steel work and steel cells, with their patent locking and operating device, on the large Onondaga County, N. Y., Penitentiary, and they are now at work on a large number of steel cells for the United States Prison at Atlanta, Ga.; also the iron and steel work and steel cells for new jails at Shreveport, La.; Norfolk, Va., and Richmond, Va. The cells for all the above work will be equipped with their patent locking and operating device. In addition to the above jail and prison work they have just equipped 152 steel cell fronts for the Industrial Reformatory at Hutchinson, Kan., and have many contracts for jail work of less importance than those noted above. In their architectural and structural department they are at work on the following work in their city: The structural steel work for new span and railings, Newport and Covington Bridge; steel building for Norwood Foundry Company; steel building for Boldt Glass Company; structural and ornamental iron work for two school houses; structural steel work for addition to the Globe-Wernicke Company, Eighth street, factory building; steel beams, cantilever girders and columns and footings for foundation of the J. E. Mooney Mfg. Company building. They also have a large amount of architectural and structural work which goes outside of the city. They are also running to their full capacity in their iron fence and lawn furniture departments. They have large orders for heavy iron fence for public grounds and cemeteries at Shreveport, La.; Springfield, Ill.; Wakeka, Ill.; St. Henry, Ohio; Hartford, Conn.; Atlanta, Texas; Butte City, Mont.; Llano, Texas; Champaign, Ill.; Seattle, Wash.; Manila, P. I.; Honolulu, H. I.; Havana, Cuba; Northampton, Mass.; New York City, Chicago, Ill.; Atlanta, Ga.; Bridgeport, Conn.; Belfast, Maine, and Sandersville, Ga. The company have recently completed a new three-story brick addition to their plant and are now contemplating additional improvements to meet the requirements of their increasing business.

Miscellaneous.

The National Cable & Wire Company have bought the plant at Shousetown from the American Sheet Steel Company, and will at once begin to equip the plant with machinery for the manufacture of underground cables and wires. This property consists of about 6 acres, with a frontage on both the Ohio River and the Pittsburgh & Lake Erie Railroad. The price paid was $30,000. The officers of the National Cable & Wire Company are David Carlin of Allegheny, president; Joseph A. West of Beaver, vice-president; H. W. Klein, the Allegheny real estate agent and secretary of the Coraopolis & Monaca Street Railroad Company, secretary; John E. Powell of Allegheny, treasurer; J. W. Kelly of New Brighton, engineer and superintendent. The men named, together with John H. Carlin of the Carlin Machinery & Supply Company in Allegheny, are the directors. The machinery to be used for the manufacture of the cables is the invention of the president, David Carlin of the North Pittsburgh Foundry & Steel Company of Allegheny. It is intricate, but it is said it will produce a better underground cable at less price than the machinery now in use.

Work on the new buildings of the Niles Car & Mfg. Company, at Niles, Ohio, is being pushed as rapidly as possible and this new works will be ready for operation within 90 days. The installation of machinery, all of which has been bought, will be started in a short time.

The stockholders of the American Belting Company, who will build a large plant at Youngstown, Ohio, have elected the following officers: J. Edwin Davis, president; W. D. Hunter, vice-president; John Tod, secretary; W. W. Hunter, treasurer and general manager. The company expect to be manufacturing belting in 90 days.

The Scranton Iron Fence & Mfg. Company, Scranton, Pa., last year placed a fence around two sides of Washington's headquarters at Newburg, N. Y., and they are now placing a fence around its two remaining sides. They are making a large fire escape to be placed on the building of the Cayuga Asylum for the Insane at Auburn, N. Y., and they are also busy on contract for iron work on the new office buildings of the Lackawanna Iron & Steel Company, Buffalo, N. Y. They have in addition a number of smaller contracts for fire escapes, elevator inclosures and interior bank decoration fittings.

The Scranton Corundum & Emery Wheel Company, Scranton, Pa., are about to occupy new and larger premises at 1311 to 1315 Capouse avenue. They will put in new machinery and be equipped to do a considerably larger business. There has been a change in the officers of the company, who are now as follows: President, Col. Herman Ostraus; secretary, Otto Kacht, and treasurer and manager, J. W. Browning.

The Toledo Scale & Cash Register Company have been incorporated with a capital of $1,000,000, by Henry Theobald of Dayton, Ohio, for many years general manager of the National Cash Register Company; Matthew C. Gay and C. Edwin Young of Newark, N. J., and some other Eastern capitalists. The plant and business of the De Vilbiss Computing Scale Company, at Toledo, have been purchased, and with it will be combined the cash register business at Springfield, Ohio, owned by Mr. Theobald. The scale works will be enlarged to twice the present capacity, and both the scales and registers will be called the Toledo. Mr. Theobald will be general manager.

The New Process Raw Hide Company, Syracuse, N. Y., are in receipt of an order from an Eastern machine company for ten pairs of gear wheels, the larger to be cut cast iron and the smaller New Process raw hide, making a noiseless combination. The cut cast iron gears run from 20 to 80 inches and the raw hide pinions from 6¾ to 16 inches in diameter. The total amount of the order is above $2000.

The Scranton Mercantile Company, Scranton, Pa., have contracted to make two 38-inch double leather belts for M. F. D. Scanlon & Co., Bloomsburg, Pa., to be used on the generators of the new electric road running from Danville to Berwick. They have also supplied a large transmission rope for the new plant of Healey & Parks, Wilkes-Barre, Pa. The company have been recently appointed selling agents for the American Iron & Steel Mfg. Company, Lebanon, Pa.

Joseph H. Glarth has leased the foundry and machine shop at Altoona, Pa., formerly operated by J. W. Bain, for the purpose of manufacturing a line of hot air heaters and other heating appliances which he has invented.

The large smelter of the American Smelting & Refining Company, at El Paso, Texas, caught fire on July 10, and about $150,000 worth of property was destroyed. New machinery has been sent for and as soon as possible the smelter will be put in operation.

John Muirhead & Son, Pittston, Pa., who commenced business about four years ago to manufacture drilling and fishing tools and oil, gas and artesian well supplies, have been kept full of work this year. The bulk of their business is done in Pennsylvania, Maryland and the two Virginias.

The Superior Mfg. Company of Allegheny, Pa., were granted a charter on Monday, with a capital of $25,000. The concern will manufacture natural and artificial gas fixtures and will build an addition to their present works for the purpose of taking up other lines of manufacture.

The McCreary Coke Company of Gracetown, Indiana County, Pa., have been organized with a capital of $50,000. The directors are John Stambaugh, Jr., Edward L. Ford, Henry H. Stambaugh, George Perkins, all of Youngstown, Ohio, and Harry S. Overly of Gracetown. This concern have secured a large amount of coal lands in the Connellsville region, and they propose to build coke ovens for supplying the Brier Hill furnaces at Youngstown, Ohio, with coke.

J. C. Phillips of Greensburg, Pa., has resigned his position with the Best Mfg. Company of Pittsburgh, Pa., to accept the superintendency of the Hempfield Foundry, Limited, of Greensburg, Pa. This company for the past two years have been extensively engaged in the manufacture of mine cars and mining machinery, and they now contemplate extensive improvements to their plant and will make a specialty of all kinds of gray iron castings.

The following have been appointed chairmen of the respective juries for the Pan-American exposition: John Birkinbine, president Franklin Institute, Philadelphia, mines and metallurgy; Professor Ira N. Hollis, Harvard University, machinery; Dr. Carl Hering, Philadelphia, electricity, and Col. H. G. Prout, editor *Railroad Gazette*, New York, transportation.

The Iron and Metal Trades.

The strike in the rolling mills has not developed any special features during the week, and the feeling in the trade is that the power of the Amalgamated Association has been generally overrated.

From a high source comes the statement that the United States Steel Corporation will wait until its men in nonunion mills get ready to go to work, and then plant after plant will be opened, which does not seem likely for some weeks.

The decline in the product of the finishing mills will soon lead to the closing down of some of the steel plants and to either banking of furnaces or to the accumulation of Pig Iron. The longer this condition lasts the greater will be the necessity for the merchant furnaces who sell to the United States Steel Corporation to look for an outlet in other directions. The Ohio Steel Company plant at Youngstown has been put on Steel Rails, so that it can take up the work of South Chicago should any trouble arise there. This, of course, reduces the Billet supply.

The shortage of Sheets and Tin Plate has already made itself felt, and jobbers' stocks are being drawn on heavily all over the country, a premium being secured. There is a decidedly firmer feeling in Iron Bars, and the recent weakness in Steel Bars has disappeared.

The Pig Iron situation is puzzling. Statistically the position continues favorable, but there is a feeling of uncertainty and weakness cropping up in different places. This week business has been light all over the country. We note a sale of 10,000 tons of Basic Iron in the Philadelphia district.

Quite a good deal of tonnage has been placed in Structural Material. The American Bridge Company have taken upward of 15,000 tons of Bridge work, including 9000 tons for a coal road, 2400 tons for track elevation at Newark, N. J.; 2150 tons for a Western road and 1325 tons for a Chicago Lift Bridge. In New York 8000 tons have been contracted for for a number of buildings, and in other quarters good round lots have been placed. We note also 1175 tons for buildings for the Imperial Navy of Japan.

As yet all branches of the Iron industry continue exceedingly well employed, and while occasionally a slight weakness develops locally, prices continue firm. But conservative men in the trade are alert to note any sign of the effect of the crop disappointment, which must tell to some extent upon the consumption of the next year. With our enormous output we cannot afford to undergo much curtailing in that direction.

A feeling of resentment is developing among some of the large Copper interests at the lack of co-operation on the part of leading lake producers. The latter, it is claimed, are not doing their share in carrying a stock of Copper for the manufacturers, but are marketing their product by fits and starts quite irrespective of the effect upon the market of such a policy. It looks as though some people may be growing tired of holding the umbrella over others. They may close it with a bang.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	July 24, 1901.	July 17. 1901.	June 26 1901.	July 26, 1900
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia	*$14.75*	$14.75	$15.00	$16 25
Foundry Pig, No. 2, Southern, Cincinnati	*12.75*	12.75	13.00	16 00
Foundry Pig, No. 2, Local, Chicago	15.00	15.00	15.00	17 50
Bessemer Pig, Pittsburgh	16.00	16.00	16.00	16 00
Gray Forge, Pittsburgh	*13.50*	13.50	14.00	15 00
Lake Superior Charcoal, Chicago	17.00	17.00	17.00	21.00
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh (nom)	*24.00**	24.00	24.50	19.00
Steel Billets, Philadelphia (nom)	*26.50*	26.50	26.75	22 50
Steel Billets, Chicago, (nom)	.....	.....	.....	.....
Wire Rods (delivered)	*35.50*	36.00	39.00	30.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28 00	35.00
Spikes, Tidewater	1.80	1.80	1.80	2,10
Splice Bars, Tidewater	**1.50**	1.50	1.40	2 00
OLD MATERIAL:				
O. Steel Rails, Chicago, gross ton	13.00	13 00	13.00	9 50
O. Steel Rails, Philadelphia	**16.00**	15 75	15.00	13.00
O. Iron Rails, Chicago, gross ton	18.50	18.50	18.50	12.50
O. Iron Rails, Philadelphia	19.00	19 00	19.00	15.00
O. Car Wheels, Chicago, gross ton	16.50	16.50	16.50	18.00
O. Car Wheels, Philadelphia	17 50	17.50	17.50	17.00
Heavy Steel Scrap, Chicago, g. ton	*12.50*	12.50	13.00	9.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.55	1.55	1.55	1.90
Common Iron Bars, Chicago	**1.60**	1.55	1.55	1.80
Common Iron Bars, Youngstown	*1.45*	1.45	1.45	1.80
Steel Bars, Tidewater	1.60	1.60	1.60	1.90
Steel Bars, Pittsburgh	1.40	....	1.40	1.10
Tank Plates, Tidewater	1.75	1.75	1.75	1.90
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.10
Beams, Tidewater	1.75	1.75	1.75	2.05
Beams, Pittsburgh	1.60	1.60	1.60	1.90
Angles, Tidewater	1.75	1.75	1.75	1.95
Angles, Pittsburgh	1.60	1.60	1.60	1.80
Skelp, Grooved Iron, Pittsburgh	*1.80*	1.85	1.82½	1.25
Skelp, Sheared Iron, Pittsburgh	1.90	1.90	1.90	1.25
Sheets, No. 27, Pittsburgh	*3.10**	3.20	3.20	2.95
Barb Wire, f.o.b. Pittsburgh	2.90	2.90	2.90	2.80
Wire Nails, f.o.b. Pittsburgh	2.80	2.80	2.80	2.80
Cut Nails, Mill	2.00	2.00	2.00	1.95
METALS:				
Copper, New York	*16.87½*	17.00	17.00	16.37½
Spelter, St. Louis	3.80	3.80	.....	4.12½
Lead, New York	4.37½	4.37½	4.37½	4.00
Lead, St. Louis	.....	4.27½	.....	3.95
Tin, New York	*26.62½*	27.25	28.25	33.50
Antimony, Hallett, New York	8.75	8.75	8.75	9.50
Nickel, New York	60.00	60.00	60.00	55.00
Tin Plate, Domestic Bessemer, 100 lbs., New York	4.15*	4.19	4.19	4.84

* Nominal price.

Chicago.

1205 FISHER BUILDING, July 24, 1901.—(*By Telegraph.*)

Drought is a market factor which has come to the front decidedly. If general rains do not come quickly the country will suffer from a calamity, which now threatens to be the worst of the kind in 25 years. Reports from all over the West tell an unvarying story of excessive heat and lack of rain greatly destructive to growing crops. This condition is too new to have any noticeable effect on the Iron trade, but it will have to be reckoned with in making calculations as to the possible demand for Iron and Steel during the coming 12 months. The demand for Bars, Sheets, Tin Plates, Wire products and general Hardware continues active.

Pig Iron.—A number of commission houses report practically no market. Others have had a little more business than the previous week, but they could have had a great deal more and still found trade far from active. The strike of the Chicago molders is curtailing the local demand. The buying by country foundrymen is somewhat better. Shipments are being held up to some extent, on account of the strike and partly because of the uncertain crop outlook, which makes some manufacturers cautious in stocking up for the fall trade. Prices are well maintained under the circumstances. It is asserted that the Southern manufacturers are se-

curing more business from other sections and are therefore not disposed to make concessions to secure the little business of this locality. The local furnacemen are still so well supplied with orders that they are maintaining old prices. We quote as follows:

Lake Superior Charcoal	$17.00 to $18.00
Local Coke Foundry, No. 1	15.50 to 16.00
Local Coke Foundry, No. 2	15.00 to 15.50
Local Coke Foundry, No. 3	14.50 to 15.00
Local Scotch, No. 1	15.75 to 16.25
Ohio Strong Softeners, No. 1	16.00 to 16.50
Southern Silvery, according to Silicon	14.90 to 15.15
Southern Coke, No. 1	14.65 to 14.90
Southern Coke, No. 2	14.15 to 14.40
Southern Coke, No. 3	13.65 to 13.90
Southern Coke, No. 1 Soft	14.65 to 14.90
Southern Coke, No. 2 Soft	14.15 to 14.40
Foundry Forge	13.15 to 13.40
Southern Gray Forge	12.65 to 12.90
Southern Mottled	12.15 to 12.40
Southern Charcoal Softeners, according to Silicon	15.00 to 16.50
Tennessee Silicon Pig	16.00 to 17.00
Alabama and Georgia Car Wheel	19.90 to 20.50
Malleable Bessemer	16.25 to 16.50
Standard Bessemer	17.50 to 18.00
Jackson County and Kentucky Silvery, 8 per cent. Silicon	15.75 to 16.25

Bars.—The owners of Bar mills now running are reaping a harvest. It had not been supposed that the strike in the mills of the American Steel Hoop Company would have such a marked effect on the trade. Many consumers appear to need Bars for immediate use and are having great difficulty in finding mills so situated as to make the desired deliveries. An order for 4000 tons to be delivered in 60 days has been passing from one office to another. The smaller independent manufacturers claim that they would be able to secure orders enough to run for a year, if they cared to take them, but they look for much higher prices if the strike continues. The orders placed during the past week have aggregated many thousand tons. Mill shipments of Bar Iron are variously quoted according to the views of different manufacturers. Some name 1.55c., but this is for delivery far in the future. Most are quoting 1.60c., while a few will take no orders for anything like early delivery at less than 1.65c. Steel Bars are quoted in the same way from 1.60c. to 1.65c. Hoops have been advanced to 2c. at mill, which is equivalent to 2.15c., Chicago, for mill shipment. Jobbers are having a very heavy demand from consumers who need material immediately. Stocks are not only light, but badly broken. Prices are held at 1.80c. to 1.90c. for Steel Bars, 1.90c. to 2c. for Bar Iron, and 2.30c., base, for Hoops.

Car Material.—Some new business is reported, but the demand from Car builders is not so heavy as it has been.

Structural Material.—A continued good movement is reported in small lots. The mills are so full of work that those who need material for early use are drawing supplies from the local yards, even if they are compelled to pay $10 per ton more than quoted on mill shipment. It is not uncommon for purchases of 50 tons or more to be thus made from the yards. The prospects for good business in the building line are steadily growing better. Several new enterprises in this city are in sight, including both office and commercial buildings, which will require a large tonnage. A Milwaukee building is now under negotiation which will take about 2000 tons. Mill shipments are quoted as follows: Beams, Channels and Zees, 15 inches and under, 1.75c.; 18 inches and over, 1.85c.; Angles, 1.75c. rates; Tees, 1.80c.; Universal Plates, 1.75c. to 1.85c.; small lots of Beams and Channels from local yards are quoted at 2.25c.; Angles, 2c. rates; Tees, 2.15c.

Plates.—Quite a good business is doing in orders for mill shipment. The largest contract placed during the week was for a little under 2000 tons for a Western boat building company. The mills are in satisfactory shape, having plenty of work booked, but promising deliveries now in five or six weeks. Jobbers are having a fine demand from warehouse. This business keeps up remarkably well. Mill shipments are quoted as follows: Tank Plate, ¼-inch and heavier, 1.75c. to 1.80c., Chicago; Flange, 1.85c.; Marine, 1.95c. Jobbers are selling small lots from store at 1.90c. to 2c. for Tank and 2.25c. for Flange, with the usual extras for heads, segments, lighter gauges, &c.

Sheets.—As it is very difficult to secure anything but promises from manufacturers, the jobbers are having a huge business from store. Stocks are already badly broken and it is impossible to secure some sizes. Prices are advancing, as might be expected, and the minimum quotation on No. 27 Black is 3.60c., with some houses holding firm at 3.75c. and even 3.80c. Galvanized Sheets may be had to a limited extent at 70 off, but most jobbers are quoting 65 and 5 off, while in some cases 65 is strictly adhered to. Tin Plates are held at a premium. Shipments from mills cannot be had and Coke Plates are getting particularly scarce.

Merchant Pipe.—The demand is excellent, but so far no marked disposition is shown on the part of buyers to secure larger supplies than usual, notwithstanding the possibility of the Pipe mills being closed by labor troubles. Manufacturers' prices, random lengths, are as follows:

	In carloads.		Less than carloads.	
	Blk.	Galvd.	Blk.	Galvd.
⅛ to ½ inch and 11 to 12 inches	59.2	46.2	54.9	40.9
¾ to 10 inches	66.7	53.3	61.9	49.9

Boiler Tubes.—The demand, which has been quite good, is growing heavier, but no change has been made in prices. Quotations on less than carloads from jobbers' stocks are as follows:

	Steel.	Iron.
1 to 2½ inches	50	40
2¾ to 5 inches	57½	47½
6 inches and larger	50 and 5	47½

Rails and Track Supplies.—Inquiries for Heavy Sections are still being received from railroad companies and projectors of new enterprises, and it is stated that orders could easily be secured for 50,000 tons if fall deliveries could be guaranteed. Eastern mills are securing some of the business thus coming up. One inquiry is in the market for 300 miles of Track. Prices are continued at $28 for Heavy Sections and $29 to $33 for Light Sections. Track Fastenings are in good demand, with prices firmly held and a possibility of higher rates on Bolts. Quotations are as follows: Splice Bars, 1.75c. to 1.80c.; Spikes, 1.95c. to 2c.; Track Bolts, with Hexagon Nuts, 2.80c. to 2.90c.; with Square Nuts, 2.65c. to 2.75c.

Merchant Steel.—Manufacturing consumers are placing additional contracts for specialties for delivery during the coming 12 months. Mill representatives report their works so crowded with orders that it is rapidly becoming a question whether they will be able to take more business. Mill shipments, Chicago, are quoted as follows: Smooth Finished Machinery Steel, 2c. to 2.10c.; Smooth Finished Tire, 1.85c. to 2c.; Open Hearth Spring Steel, 2.30c. to 2.40c.; Toe Calk, 2.40c. to 2.60c.; Sleigh Shoe, 1.85c. to 1.90c.; Cutter Shoe, 2.40c. to 2.60c.; Cold Rolled Shafting, 55 off. Ordinary grades of Crucible Tool Steel are quoted at 6½c. for carloads and 7c. to 7½c. from store; Specials, 12c. upward.

Old Material.—The market is quiet. Labor troubles in the foundries are cutting off the demand for Cast Scrap and the rolling mills seem to be pretty well stocked for the present. Dealers are consequently waiting for developments. Supplies of all kinds of Old Material are large, except Borings and Turnings, which are somewhat scarce because of the machinists' strike. The following are approximate quotations per gross ton:

Old Iron Rails	$18.50 to $19.50
Old Steel Rails, mixed lengths	13.00 to 13.50
Old Steel Rails, long lengths	15.00 to 15.50
Heavy Relaying Rails	22.00 to 23.00
Old Car Wheels	16.50 to 17.00
Heavy Melting Steel Scrap	12.50 to 13.00
Mixed Steel	10.50 to 11.00

The following quotations are per net ton:

Iron Fish Plates	$16.00 to $16.50
Iron Car Axles	18.50 to 19.00
Steel Car Axles	15.50 to 16.00
No. 1 Railroad Wrought	14.25 to 14.75
No. 2 Railroad Wrought	12.50 to 12.75
Shafting	15.50 to 16.00
No. 1 Dealers' Forge	12.00 to 12.50
No. 1 Busheling and Wrought Pipe	10.50 to 11.00
Iron Axle Turnings	10.00 to 10.50
Soft Steel Axle Turnings	9.00 to 9.50
Machine Shop Turnings	9.50 to 10.00
Cast Borings	4.25 to 4.50
Mixed Borings, &c	4.50 to 5.00
No. 1 Boilers, cut	11.50 to 12.00
No. 2 Boilers, cut	9.50 to 10.00
Heavy Cast Scrap	10.50 to 11.00
Stove Plate and Light Cast Scrap	8.00 to 8.50
Railroad Malleable	11.50 to 12.00
Agricultural Malleable	10.50 to 11.00

Metals.—Pig Lead is moving quite freely at 4.32½c. for Desilverized and 4.42½c. for Corroding in 50-ton lots. Good business is being done in Copper, which is still held at 17½c. for carload lots of Lake and 17¼c. for Casting brands. Old Metals are neglected, but prices are steady. Dealers quote selling prices on small lots of Old Materials as follows: Copper Wire and Heavy, 15½c.; Copper Bottoms, 14c.; Pipe Lead, 4¼c.; Zinc, 3¼c.

Coke.—The labor troubles in the foundries do not appear to have interfered seriously with the Coke trade. Quite a number of contracts have been placed during the week and more are in negotiation. Prices are still $4.50 to $5 for 72-hour Foundry Coke.

Philadelphia.

FORREST BUILDING, July 23, 1901.

Events during the past week have not been calculated to improve conditions in the Iron trade, but in the meanwhile there is nothing adverse to report from this vicinity. Pig Iron is well taken at firm quotations, while Finished Material is irregular, some descriptions being extremely active, scarce and hardly quotable. This, however, cannot continue for any length of time, as consumption outside of the Iron trade is greatly hampered by the scarcity of material. Stove manufacturers, for instance, require a great deal of light Steel Plates; machinists' and engineering establishments suffer in like manner, so that the effects of the strike are far reaching, and must eventually develop very serious conditions. Nevertheless there is nothing yet that can be considered as important happenings, but the feeling is very nervous and not as hopeful as it has been until the past week or two. There is no disposition to force business, but, on the contrary, manufacturers seem inclined to wait for the demand, and quote the full rates of last week without intimating that concessions may be had for immediate business.

Pig Iron.—There has been a very good demand, considering the unsettled condition of things in the West, and prices have been easily maintained at the full figures of last week. Sales include all the various grades of Foundry and Mill Irons, with some inquiry and probability of sales in moderately large blocks of the special grades for Steel making. Deliveries are well taken, and some of the furnaces are hard pushed to make shipments as quickly as desired. Locally, therefore, the situation is entirely satisfactory, and if it were not for the strike uncertainties, the chances would seem to favor better prices, but in the meantime sales are made at about the following figures for deliveries, Philadelphia and equivalent points: No. 1 X Foundry, $15.75 to $16; No. 2 X Foundry, $15 to $15.25; No. 2 Plain, $14.25 to $14.75; Standard Gray Forge, $13.75 to $14; Ordinary Gray Forge, $13.50; Basic (Chilled), $14 to $14.25; Bessemer, $14.50 to $15.

Muck Bars.—There is a good demand, with sales at about $28, f.o.b. cars at sellers' mills.

Billets.—There is not much business, and prices are more or less nominal at $26.20 to $26.70 for August shipments, and 50c. to $1 less for October and later months. Sheet Bars about $28.

Plates.—Prices are steady, but there is not much demand and some of the mills are beginning to run a little short of orders. The extreme heat prevents a full production, however, and that, in connection with the suspension of work at so many mills in the West, is likely to make it comparatively easy to maintain prices, which are unchanged, as follows, for city and nearby deliveries: Plates, ¼-inch and thicker, 1.75c. to 1.80c.; Universals, 1.75c. to 1.80c.; Flange, 1.90c. to 2.10c.

Structural Material.—In this department mills appear to be very full of work, as prompt deliveries are hard to get, and besides there is a great deal of work under contract. Prices are therefore very firm as last quoted—viz., for seaboard or nearby deliveries: Angles, 1.75c. to 1.85c.; Beams and Channels, 15-inch and upward, 1.75c. to 1.85c.

Bars.—The demand is only moderate, but the hot weather prevents a normal production; consequently the mills have about as much business as they can conveniently handle. Prices are firm and are held at the figures designated by the pool, which are about 1.55c. to 1.60c. at nearby points, based on 1.45c., f.o.b. cars Pittsburgh. Steel Bars scarce and firm at 1.60c. to 1.65c.

Sheets.—The demand is very heavy and entirely beyond what the mills can handle, hence prices are hardly quotable, as special rates are offered for deliveries during July and August. Nominally quotations are as follows for Best Sheets (Common Sheets two-tenths less): No. 10, 2.60c.; No. 14, 2.80c.; No. 16, 2.90c. to 3c.; Nos. 18-20, 3.50c.; Nos. 21-24, 3.60c.; Nos. 26, 27, 3.75c.; No. 28, 3.80c. to 4c.

Old Material.—Steel is in good demand and sells readily at $16 for good melting stock. Machinery Cast is also doing a little better at $14 to $14.50, but others are rather quiet at about the same prices as quoted last week. Bids and offers are about as follows for deliveries in buyers' yards: Choice Railroad Scrap, $17.50 to $18; Country Scrap, $16 to $17; No. 2 Light Scrap, $12.50 to $13; Machinery Cast, $14 to $14.50; Heavy Steel Scrap, $16 to $16.25; Old Iron Rails, $19 to $20; Old Steel Rails, $16 to $16.25; Wrought Turnings, $11.50 to $12; Cast Borings, $7.25 to $7.50; Old Car Wheels, $17.50 to $18; Iron Axles, $21.50 to $22; Steel Axles, $17 to $18.

Cleveland.

CLEVELAND, OHIO, July 23, 1901.

Iron Ore.—The fear now seems to be that enough wild Ore will not be moved before demand for boats in the other trades causes a shortage of tonnage applicable to the movement of Ore. The effort, therefore, to ship wild material early is sustained and a very healthy condition of things exists. Everything points to stability, both in conditions and rates. The rates prevailing on the market are 80c. from Duluth and the head of the lakes; 70c. from Marquette and 60c. from Escanaba. The latter port continues to draw an increased supply of tonnage, indicating an increase in the amount of material brought down the lakes from that source.

Pig Iron.—There is every indication now of a very big business immediately ahead in all grades of Pig Iron. The buying of Foundry grades has started quite heavily, and on the sales now made deliveries are demanded during the remainder of the year. Prices which have been quoted for the last two months will prevail upon the business done in the future. The Foundry grades had not been in much demand until this week, when they took a spurt and some good sized contracts have already been closed, with inquiries denoting others immediately in sight. These are expected to be closed in a comparatively short time. The foundries have not been affected by the strike of the Bar and Sheet mills, and it will take a long time for any effects to reach back that far. In the meantime the purchase of material keeps up. The prices hold out at $13.75 to $14 for No. 2 and $14 to $14.25 for No. 1, Valley furnace. The indications are that business will be done upon that basis for the next three months at least, which is considered encouraging, since most of the producers have expected a certain decline. Both Bessemer and Basic producers are looking for business, as the orders which now show up on the books do not extend much past August 1, although some of the sales have been made for two weeks past that time. Bessemer sales have, if anything, been heavier than those of Basic, but even these have not been up to the expectations of the furnacemen. The stacks are feeling very slightly now the effects of the strike, mostly, however, in the hesitancy of the buyers as to future contracts. Bessemer is now being quoted at $15.25, at Valley furnace. Basic has been sold recently in small quantities as low as $14.75, at Valley furnace, with furnacemen looking for orders.

Finished Material.—The strike of the Amalgamated Association is directly responsible for sharp advances in Light Sheets and a slight increase in the prices of Bars and Hoops. Heavy Sheets, of course, are not produced by the mills now affected by the strike and most of the big producers are free from labor trouble. But Light

Sheets, 90 per cent. of which are produced by the American Sheet Steel Company, have been subjected to an advance of from $2 to $6 a ton. The increase is occasioned mostly by very heavy buying in this territory of concerns from Chicago and the West, who are drawing heavily on Cleveland stocks. Some of these are on the market for speculative purposes, but are finding little encouragement. In most instances the local concerns and the regular trade are being cared for on a more nearly normal basis, while the outsiders have to pay for their material. Blue Annealed Sheets out of stock are bringing the following prices: No. 10, 2.50c.; No. 12, 2.60c.; No. 14, 2.70c.; No. 16, 2.90c.; No. 18, 3.10c. One Pass Cold Rolled are bringing, No. 20, 3.55c.; Nos. 22-24, 3.65c.; No. 26, 3.75c.; No. 27, 3.85c.; No. 28, 3.95c. The Republic Iron & Steel Company are quoting 1.50c. at the Youngstown mills on Iron Bars, which is an increase of 0.10c., while on the Steel Bars they are asking the old price of 1.40c. as a minimum out of the Pittsburgh mills. Other producers, however, have had no difficulty in finding offers plentiful at 1.45c. or even 1.50c., some orders having been taken at the latter figure. The price of Hoops has also gone up slightly, 0.05c. having been added to the price during the last week. This is due directly to the influence of the strike. There is an increasing demand for Billets, which is causing some of the mills to get together to see if it is at all possible to agree upon a price. The quotation has not been at all definite or satisfactory in the last few weeks, but the appearance of some new and rather large business has occasioned the meeting. There are inquiries on the market now for something like 6600 tons of material to be delivered during the remainder of the year. Of this order 600 tons was of the smaller sizes. The fact that the strike has not spread beyond the Bar and Sheet Steel mills has had a buoyant effect upon the market in general and business this week indicates that the trade is keeping up at the pace struck during the last few weeks. Ordering is very heavy and the inquiries coming in promise rich business for the immediate future. The slight increase in the price of Rails noted last week seems to have been on a Splice order from some of the roads which had been caught short and sorely in need of material. The market since that time has showed no further sales, but $29 continues to be quoted and can be obtained on rush orders. The demand for Structural Shapes and large Plates keeps up splendidly and the outlook is most encouraging. The American Ship Building Company have announced contracts taken for two more Steel freighters, with others immediately in sight. Not much is being done in sales of Structural Material, but the specification upon former orders has been very heavy. The prices hold firm at 1.70c.

Old Iron.—The Scrap trade is looking up some, with better business in sight. Some good sized sales have been announced during the week, upon which the newly established prices prevail. These are as follows: No. 1 Wrought, $15, net; Heavy Steel, $15 gross; Steel Rails, $15 gross; Cast Borings, $6; Wrought Turnings, $10 net.

Cincinnati.

FIFTH AND MAIN STS., July 24, 1901.—(*By Telegraph.*)

The situation in Pig Iron is a rather puzzling one. The good selling as told of in last week's report indicated a good strong market, but the trade of the week just past did not carry out the promise. There was no selling in round lots and only the customary run of retail business. In response to some inquiries some pretty low prices have been brought forward. Nominally the quotations are unchanged, though in point of fact the minimum figures have been shaved as much as 25c. In some propositions the buyer has been given the freight differential from the Southern furnaces, which happen to be nearer this market than Birmingham. In this way No. 2 has been offered as low as $9.85, and Gray Forge at $8.75, Birmingham basis. The inquiry has dropped away and everything is again dull. The statistical situation calls for lots of backbone and a moderate degree of patience on the part of sellers, and the question is, Have they got it? Sometimes it looks not. Freight rate from Birmingham is $2.75 to this point; from Hanging Rock district, $1. We quote, fo.b. Cincinnati:

Southern Coke, No. 1	$13.50 to $13.75
Southern Coke, No. 2	13.00 to 13.25
Southern Coke, No. 3	12.25 to 12.75
Southern Coke, No. 4	11.75 to 12.00
Southern Coke, No. 1 Soft	13.50 to 13.75
Southern Coke, No. 2 Soft	13.00 to 13.25
Southern Coke, Gray Forge	11.75 to 12.00
Southern Coke, Mottled	11.75 to 12.00
Ohio Silvery, No. 1	15.50 to 16.00
Ohio Silvery, No. 2	14.50 to 15.00
Lake Superior Coke, No. 1	14.50 to 15.00
Lake Superior Coke, No. 2	14.00 to 14.50
Lake Superior Coke, No. 3	13.50 to 14.00
Southern Basic	13.75 to 14.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel, chilling grades	$18.25 to $18.75
Standard Southern Car Wheel, No. 2	17.25 to 17.75
Lake Superior Car Wheel and Malleable	18.50 to 19.00

Plates and Bars.—With quotations nominally unchanged the market is very strong, and as much as $3 advance per ton is being asked and obtained for some mill products. The strongest article on the list is Steel Bars. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.60c., with half extras; same in small lots, 1.80c., with full extras; Steel Bars, in carload lots, 1.55c., with half extras; Base Angles, in carload lots, 1.80c.; Plates, ¼-inch and heavier, 1.80c.; Sheets, No. 16, 2.50c.

Old Material.—There is no material change in the market, trade is fairly good, and prices are unchanged. We quote dealers' buying prices, f.o.b. Cincinnati, as follows: No. 1 Wrought Railroad Scrap, per net ton, $13.25 to $13.50; Cast Railroad Machine Scrap, $12.25 to $12.75; Iron Axles, $18.75 to $19; Iron Rails, $16.75 to $17.25; Steel Rails, rolling mill lengths, $14.75 to $15.25; short lengths, $13.75 to $14; Car Wheels, $15.75 to $16.25. All prices except No. 1 Wrought on the basis of gross tons.

The C. R. Talbot Company, Iron and Steel factors and warehousemen, with offices at 9 and 10 Wiggins Block, are contemplating the building of an addition to their present warehouse corner of Spring Grove avenue and Stenight street, which will give them a floor space of 75 x 250 feet and enable them to carry a complete line, including Shafting.

Birmingham.

BIRMINGHAM, ALA., July 22, 1901.

The Iron market is better in one respect because there is more uniformity in price. The majority of the various interests have but one price and that is on the basis of $10.50 for No. 2 Foundry. In some instances $10.75 has been obtained for small orders. No. 3 Foundry is $10, No. 4 Foundry is $9.50 and Gray Forge is $9.25. The inquiry was materially increased, but the buying movement yet lags. Buyers of Basic Iron were in the market for August and September deliveries, but secured very little, of any. Those deliveries are very hard to obtain. The price bid was $10.50 and $10.75. The largest seller offered deliveries extending through December at $11.25. This was an advance of 75c. over last sales. Buyers did not show any avidity in accepting offerings. They retired from the market. The Soft grades had buyers on the basis of $10.50 for No. 2, and some sales were registered. While the volume of business was appreciably increased it cannot be called an active market as yet. So far as sellers are concerned they anticipate a better market in the near future and are not disposed to grant any concessions. Some of the large interests were inquiring as to prices, but none of the inquiries eventuated in business. At the Steel mill they are overhauling the furnaces and making general repairs and the current production has been materially decreased. The Steel Rail mill is progressing, but there does not seem to be any effort to push erection to rapid completion. The Rod mill of the Alabama Steel & Wire Company is now turning out Rods at the rate of 300,000 pounds a single turn. A willing market absorbs the output of the Bar and Rod mill.

The sugar country has placed important business with shops here and maturing contracts are being shipped as completed.

At a meeting of the stockholders of the Electric Light & Power Company the necessary authority was given for the issuance of $6,000,000 in bonds of which $4,000,-

000 will be used to retire old bonds and $1,000,000 will be used in increasing efficiency and power of the plant. Another $1,000,000 will be held in the treasury to be used as circumstances may demand. The track between here and Bessemer is being replaced with heavier Rails as fast as received and the days of the dummy engine are numbered. The trolley system will supersede it, and the running time between the two places will be materially lessened.

The mining interests are being pushed and in many instances improvements looking to efficiency in mining are being adopted.

The fear of a strike by the labor element has about passed. There is some friction yet in a few cases, but it is gradually disappearing and will soon pass away. Between the more important interests and the miners everything has been settled for the next year and the Western strike will have no influence here. As far as appearances go the prospect for a fruitful and busy year are unchanged.

Pittsburgh.

HAMILTON BUILDING, July 24, 1901.—*(By Telegraph.)*

Pig Iron.—The market is absolutely lifeless. None of the consumers of Iron are buying and there have been no sales on which to base prices. There is no pressure on the part of the furnaces to sell Iron and the nominal price of Bessemer is $15.25, at furnace. This might, however, be shaded if any business were offering. Forge Iron is quiet at about $13 at furnace, or $13.75, Pittsburgh. We quote: Bessemer Pig, nominally, $15.25 at furnace, or $16, Pittsburgh; Gray Forge, $13 at furnace, or $13.75, Pittsburgh; No. 1 Foundry, $14.50 to $15; No. 2, $14 to $14.50; No. 3, $13.75 to $14. A sale of about 300 tons of Northern Forge is reported at about $13.75, Pittsburgh. As noted last week, a good deal of Southern Forge has been sold in the Pittsburgh and Valley districts. The price was about $13, Pittsburgh, and $12.50 in the Valleys.

Billets.—There is practically nothing doing. Small lots of Billets for prompt shipment, and for which there is very little inquiry, are held at about $24, Pittsburgh. Billets for shipment over the last three or four months of the year could be bought at $23 or less. Sheet Bars for August delivery are being sold by the leading interest at $25, delivered, Pittsburgh.

(By Mail.)

With practically no new developments in the strike, the week in the Iron trade has been extremely quiet. In Pig Iron and Steel there is very little doing and the market on the latter is easier. There is a moderate demand for Finished Iron and Steel, and the mills that are running have plenty of work. There seems to be no longer any doubt but that the United States Steel Corporation have gone into the strike with the determination to make no compromise and this means there can only be one result of the fight, and that is the complete defeat and ultimate disruption of the Amalgamated Association. It may take some time and a good deal of money to do this, but it is clearly evident that the Amalgamated officials made a monumental blunder in going into this fight.

Ferromanganese.—We quote 80 per cent. Domestic in small lots at $55, delivered at buyer's mill.

Muck Bar.—There is a heavy demand for Muck Bar, and the shut down of so many mills has made it scarce. Sales are reported of Standard grades at $30.50 to $31, f.o.b. Pittsburgh.

Steel Rails.—Report has it that some of the Southern roads have placed some tonnage for 1902 delivery, but this has not been verified. Prompt delivery of Rails, either Light or Standard Sections, is very hard to get. In carloads, 16 and 20 pound Rails have been quoted as high as $37, and 30-pound at $35, at mill, for prompt delivery. For delivery within three or four months prices are lower. We quote Standard Sections at $28, at mill, for this and next year's delivery.

Plates.—The strike has not affected the Plate trade in any way. We may note a fairly good demand for Plates, mostly, however, in small lots. It is claimed that some large contracts are in sight and would be given out before long. The Plate mills are pretty comfortably filled up, mostly on old orders, however. We are advised that official prices are being firmly held. We quote: Tank quality, ¼-inch and heavier, 1.60c.; 3-16-inch, 1.70c.; under 3-16-inch and above No. 10, 1.75c.; Flange or Boiler Steel, 0.1c. advance over the base of Tank; Marine and Fire Box, American Boiler Manufacturers' Association specifications, 0.2c. advance over Tank; Still Bottom Steel, 0.3c. advance over Tank; Locomotive Fire Box Steel and equivalent specifications, 0.5c. advance over Tank, all f.o.b. Pittsburgh.

Structural Material.—Report has it that the Pennsylvania Railroad has decided to expend close to $10,000,000 in the building of stone bridges instead of Steel. This is important, if true, and means the displacement of a large tonnage in Steel. However, the report has not been confirmed and probably is not true. New tonnage in Structural trade is somewhat light, but the mills are filled up for several months ahead on old business. All the large jobs have been pretty well placed for this year. There is no change in prices, and we quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6 inches, 1.60c.; smaller sizes, 1.55c. to 1.60c.; Zees, 1.60c.; Tees, 1.65c.; Steel Bars, 1.40c. to 1.50c., half extras, at mill; Universal and Sheared Plates, 1.60c. All above prices are f.o.b. Pittsburgh.

Sheets.—An independent Sheet mill has quoted on an inquiry for a round lot of Sheets, 3.10c. on No. 27 and 3.20c. for No. 28, and promises delivery in six weeks. These prices are about $4 a ton higher than those quoted by the leading Sheet interest before the strike was declared. It is almost impossible to get prompt delivery of Sheets at any price and No. 27 for spot shipment is reported to have sold at 3.35c. and No. 28 at 3.40c. There is a heavy demand for Sheets, and the shortage in supply is being more seriously felt. It is hard to quote the market, but for carloads No. 27 for delivery within six weeks to two months may be quoted at 3.10c. to 3.20c., and No. 28 at 3.20c. to 3.30c. Mills or jobbers who could make more prompt delivery could realize better prices. We quote Galvanized Sheets at 70 and 10 per cent. off in carloads, but in small lots and for prompt shipment 70 and 5, and even higher, has been paid.

Bars.—The recent weakness in price of Steel Bars has, it is claimed, entirely disappeared, and the market is firm again on the basis of 1.40c. for Steel Bars with the usual extras. A good deal of tonnage is being placed. Leading mills that roll Steel Bars are all well filled up for some time to come. We quote Steel Bars at 1.40c. to 1.45c., half extras, at mill. On Open Hearth Steel Bars $2 a ton advance is charged, and also extras for high carbons. We quote Common Iron Bars 1.40c. to 1.45c., half extras, Valley mill. Common Iron Bars at about 1.40c. at Valley mill for good orders and 1.45c. for small lots. Hoops are higher on account of the strike, and we quote at 1.85c. best and up to 2c. for small lots. Bands are also firm and we quote up to No. 12 gauge at 1.40c. to 1.45c., half extras.

Merchant Steel.—A little better demand is reported. Some large consumers have recently placed some good sized orders. The requirements of the Implement trade have not been fully satisfied and some business continues to come in from this class of consumers. There is no change in prices and we quote: Tire Steel, 1.60c. to 1.70c.; Toe Calk, 1.85c. to 2c.; Open Hearth Spring, 2c. to 2.10c.; Plow Slabs, 2c. to 2.10c.; Cold Rolled Shafting, 55 per cent. off in carloads, 50 per cent. in less than carloads; Sleigh Shoe Steel, 1.65c. to 1.75c.; Tool Steel, 6c. per lb. and upward, according to the quality. On Tool Steel the mills allow freight east of the Mississippi River.

Skelp.—The market is very active and prices are firm. We quote Grooved Iron Skelp at 1.80c. to 1.90c., and Sheared at 1.90c. to 2c. Sales of 2000 to 3000 tons of Grooved Iron Skelp are reported at 1.85c., maker's mill. We quote Grooved Steel Skelp 1.75c. to 1.80c., and Sheared at 1.80c. to 1.85c.

Tubular Goods.—The Tube trade has not been affected in any way by the strike, only in the direction that buyers fear some of the mills may shut down and increase the scarcity of Pipe. There is a heavy demand and certain sizes of Merchant Pipe are very difficult to get for prompt delivery. Prices are strong and jobbers are getting premiums where they are able to ship out Pipe promptly. Prices to consumers in carload lots are as follows:

Merchant Pipe.

	Per cent. Black.	Per cent. Galvd.
⅛ to ½ inch and 11 to 12 inch	61	48
¾ to 10 inch	68½	56

Casing, Random Lengths.

	S. & S.	I. J.
2 to 3 inch	58	53½
3½ to 4 inch	63	59
4½ to 12½ inch	65	61½

Casing, Cut Lengths.

	S. & S.	I. J.
2 to 3 inch	53½	59
3½ to 4 inch	59	55
4½ to 12½ inch	61½	57½

Boiler Tubes. Up to 22 feet.

Steel.	Per cent.
1 inch to 1¾ inch and 2¾ inch to 5 inch, inclusive	65½
2 inch to 2½ inch, inclusive	60
6 inch and larger	59
Iron.	
1 inch to 1½ inch and 2½ inch	43½
1¾ inch to 2¼ inch	43
2¾ inch to 13 inch	53

Prices made by the mills to the jobbers are from 5 to 10 per cent. or more lower than the above, depending on the order. It should be noted that the above prices are for small lots.

Coke.—Output of Coke in the Connellsville region last week was 236,831 tons, a gain over the previous week of more than 35,000 tons. Shipments were 11,414 cars. We quote strictly Connellsville Furnace Coke at $1.75 to $2, and Main Line at $1.60 to $1.75. Our lower price on Main Line Furnace Coke would be shaded for prompt shipment. We quote strictly Connellsville 72-hour Foundry Coke at $2.25 and $2.50, and Main Line Foundry at $2 to $2.25, at oven.

New York.

NEW YORK, July 24, 1901.

Pig Iron.—The market has been very dull and there are renewed reports of lower prices made by some Southern interests. Reports from the Lehigh Valley indicate that the leading producers there are reducing their stocks to a moderate extent. We quote: Lehigh, Schuylkill and Virginia Irons, No. 1, $16 to $17.50; No. 2 X, $14.75 to $15.75; No. 2 Plain, $14 to $14.50; Gray Forge, $14 to $14.50; Tennessee and Alabama brands, No. 1 Foundry, $14.50 to $15; No. 2 Foundry, $14 to $14.50; No. 1 Soft, $14.50 to $15; No. 2 Soft, $14 to $14.50; No. 3 Foundry, $13.25 to $13.50; No. 4 Foundry, $12.75 to $13.25; Gray Forge, $12.75 to $13.

Cast Iron Pipe.—Current business is heavy, and the shops are exceedingly busy. The Philadelphia Water Works are in the market for 7400 gross tons, to be delivered at the close of the present month. Quotations remain $25 to $25.50 per gross ton for 8-inch Pipe, at tidewater.

Steel Rails.—A number of moderate sized orders have been placed, among them one for 5000 tons for fall delivery. We do not hear of any sales of magnitude for next year, nor is much expected for some time to come. We quote $28 for Standard Sections, $33 to $33.50 for Girder Rails, and $22 to $23 for Relayers. We quote Spikes, 1.80c. to 1.85c.; Splice Bars, 1.50c. to 1.60c.; Hexagon Track Bolts, 2.65c. to 2.70c., at mill.

Finished Iron and Steel.—For local work orders for material for fully 8000 tons have been placed during the past week, the greater part by one buyer to one seller. A good deal of bridge work has also been placed, this including about 6000 tons for a coal road, 2500 tons for track elevation in Newark, N. J. We may note also that the American Bridge Company have closed for 1175 tons of material for buildings for the Japanese navy. Lately a disposition has developed among the Plate mills to make concessions and the market is somewhat weaker. We quote as follows at tidewater: Beams, Channels and Zees, 1.75c. to 1.80c.; Angles, 1.75c. to 1.80c.; Tees, 1.80c. to 1.85c.; Bulb Angles and Deck Beams, 2c.; Sheared Steel Plates are 1.80c. to 1.85c. for Tank, 1.90c. to 1.95c. for Flange, 2c. to 2.05c. for Fire Box. Charcoal Iron Plates are held at 2.25c. for C. H. No. 1, 2.75c. for Flange, and 3.25c. for Fire Box. Refined Bars are 1.58c. to 1.60c.; Soft Steel Bars, 1.62½c. to 1.65c., and Hoops, 2c., base on dock.

Metal Market.

NEW YORK, July 24, 1901.

Pig Tin.—At the beginning of the week under review the bull interests on this side tried to sustain the market and bought Tin up to 28c. for spot. The movement was short lived, however, and a few days ago a sharp decline followed in sympathy with the marked decline of values in London and the Far East. Our market to-day closed at 26⅝c. to 26⅞c. for spot and July, 26¼c. to 26⅜c. for August, 25¾c. asked for September, 25½c. asked for October, and 25¼c. asked for November. On last Thursday spot in London was quoted £133, on Friday it declined to £130, on Monday to £126, on Tuesday to £122, and at the close to-day spot was quoted £121 and £114 10s. for futures. Next Wednesday 2500 tons will be disposed of at the regular Banca sale in Holland.

Copper.—Official quotations are still the same, with 17c. for Lake and 16⅝c. for Electrolytic and Castings. These quotations are considered entirely nominal, as there are very persistent rumors that prices are cut from ¼c. to ½c. per lb. Even considering this slight deflection, many in the trade look at the article askance, as there is hardly any demand from home consumers and export demand scarcely exists. It is stated that Europe is shipping Copper here and that the business of importation is quite remunerative. It is said that as long as the producers hold the market to present figures Chile Bars can be imported at 14¾c. per lb. These shipments from Europe, it is argued, are new business, while the metal which is going out is on old contracts. The exports to Europe are steadily decreasing in volume this month. For the three weeks of this month they amount to barely 4800 tons, while last year during the month of July 10,861 tons were shipped. The London market fluctuated considerably during the week, closing to-day for spot at £67 13s. 9d. and £68 1s. 3d. for three months' futures. Best Selected remains unchanged at £74.

Pig Lead.—There is no change in the situation whatever. The American Smelting & Refining Company are still holding the price at the position which they have maintained for many months—viz., 4.37½c. for Desilverized, New York, and 4.32½c., St. Louis. Chemical Lead is quoted here at 4¼c. to 4.32½c. London has again declined to £12 2s. 6d.

Spelter.—This market is still very dull as far as demand is concerned. There is a little side play of interest going on, however, between two large interests, one being of this city and the other of St. Louis. The latter concern are trying to ward off all doubt in the article and are disposed toward seeing good round figures named, while the local concern, it is said, are trying to make good past transactions by bearing the metal. As features of the struggle, on Monday a report came from St. Louis of a sale of 700 tons at 3.82½c. to 3.87½c., and a quotation to-day of 3.85c. The latter is believed in the trade to be a full 5c. higher than the actual market. The market here in the meantime was quoted on 'Change at 3.90c. to 3.95c., and uninterested merchants held to that figure. The London market is dull at £16 10s., which is unchanged from last week.

Antimony.—Business is not active and prices are unchanged at 8¾c. for Hallett's and 10¼c. for Cookson's.

Nickel—Is firm and without change on a basis of 60c. for lots not covered by yearly contracts.

Quicksilver.—A slight decline in London is the only change to be noted. Here prices remain the same, prices being $51 per flask of 76½ pounds for lots of 50 flasks and more. The London market is down to £9 flat.

Tin Plate.—There is no change in the situation here,

but owing to their inability to secure deliveries from the American Company certain consumers have been forced to buy abroad, and their action has advanced prices in Wales to 14s. 9d. from 13s. 10½d. Jobbers here who are fortunate in having good sized stocks on hand are getting fancy prices for certain sizes. As an illustration of this it is said that a lot was sold during the last week at $1.25 per box above the prices named by the American Tin Plate Company. Anticipating the strike, the American Tin Plate Company a few weeks ago sent circulars to the trade announcing that they were practically sold up to October 1. As a result everything in sight was snapped up, and now the only orders booked are for October, November and December delivery. These orders are being taken at unchanged prices—viz., on a basis of $4.19 per box of Standard 100-lb. Cokes, f.o.b. New York, and $4, f.o.b. mills. There is no change of importance in the strike situation.

Pittsburgh of the Future.—I.

BY JAMES N. HATCH, STREATOR, ILL.

In considering the relative importance of different cities, one is apt to ascribe to them a degree of importance corresponding to their population. But as a man is known by his works and not by his stature, so some of our cities should be given a prominence not at all in proportion to the number of persons actually residing within their limits. Pittsburgh is a city of about 300,000 people, and would thus be placed by the census enumerator as about the eleventh city in the United States; but to place Pittsburgh in a position of less importance than such cities as Cincinnati, Buffalo or St. Louis would be as absurd as to make Pennsylvania of less importance than Nevada because it is of lesser area. While it is true that a population of less than 325,000 is found within the limits of Pittsburgh proper, it is equally true that only a small portion of the wealth and business of the city is found within these same limits. With a map of Pittsburgh and environs before you, take a pair of compasses and with the center at the Carnegie Library draw a circle with a 10-mile radius, and examine all that is within the circle. On the Monongahela River we see McKeesport, Duquesne, Homestead, Braddock and half a dozen smaller places. On the Allegheny River, Sharpsburg, Etna, Millvale and Allegheny City. Down the Ohio a number of small manufacturing cities. Allegheny alone has nearly half the population of Pittsburgh proper.

Now all these cities are virtually a part of Pittsburgh and, excepting Allegheny, are owned and operated by Pittsburgh capital, having been located outside of the city limits simply because of the advantages offered in the way of cheaper land and more room. It may be objected that any city could include all the surrounding towns to swell its apparent magnitude, but it will be noticed that only those surrounding towns have been included which are really dependencies. Those towns which rely on other interests, such as farming, mining, oil, gas, &c., not having been included. Even the suburban resident towns have been excluded, although they are almost entirely peopled by the business people of Pittsburgh.

Casting up the figures as given in the last census for the population of these towns, we have nearly 300,000. Adding this to the population of Pittsburgh proper, we find an aggregation of people numbering fully 600,000.

But it is still unfair to Pittsburgh to compare it with other cities on a basis of the number of persons, even after including the foregoing towns, for no one lives in Pittsburgh or its environs unless kept there by actual business necessity. And it will be found true that a great amount of Pittsburgh business is owned by capitalists living in other cities. Again, Pittsburgh is preeminently a city of machinery; more probably than any other city in the world are her products made by labor saving machinery. For this reason also the number of persons representing the population does not indicate a comparative estimate of the amount of business transacted.

Considering all these things and comparing Pittsburgh with other cities according to genuine business actually transacted, it will be found that there are few cities in the world her equal. Other great cities may project more business transactions; may have more wealth as represented by the incomes of their residents; may send more checks through the counting houses; may pass more money across their bank counters; but when we consider original productions, actual output, wealth added to the industrial world in the way of commodities indispensable to civilization, the volume of business transacted in Pittsburgh is stupendous.

The "Universal Cyclopedia" says: "The freight tonnage originating in Pittsburgh in 1892 was 42,804,247 tons; larger than in any other city in the United States and claimed to be the largest in the world." That of 1900 is far ahead of the figure given for 1892, probably 25 per cent.

While it is true that Pittsburgh has a great diversity of manufacturing interests, the great majority depend directly or indirectly on the iron and steel industry. And the name, "Iron City," has been chosen with propriety, although, perhaps, "Steel City" would be a more relevant appellation, its iron and steel industries far outstripping any others. For, notwithstanding these other lines of manufacturing, Pittsburgh would never have gained its present pre-eminence as a manufacturing city if it had not been for its iron industries. Of late years the country has been depending on Pittsburgh for about one-fifth of its entire pig iron production and nearly one-third of its steel.

Granting, then, that Pittsburgh is the greatest manufacturing city in the United States, if not in the world, and that she is pre-eminently the greatest iron and steel producing city in this country, let us look back for a few moments in an endeavor to learn what has given her this prominence, and then with these facts in mind let us examine the prospects of her maintaining this supremacy in the future.

The real beginning of the iron industry in Pittsburgh was the introduction in that city of the rolling mill for making bar iron. This was started about the close of the second decade of the nineteenth century, and rapidly became a successful experiment; but it was a long time before this became a conspicuous iron producing center. Previous to about 1865 or 1870 the only real advantage Pittsburgh was known to have as a manufacturing city was its superior facilities as a distributing point. It was the head of navigation of the Ohio River, and consequently the terminus of the canal to Johnstown; but these were reasons of the greatest importance in the beginning of the century and served to give the city a start. The great demand for iron that followed the restoration of peace, after the Rebellion, made Pittsburgh a natural nucleus around which the great industries rapidly grew and multiplied, not because of any preconceived reasons, but because no better place was then known. It may be said that none of the natural advantages which caused the establishment and early growth of the city are operative at the present time, or if operative, they certainly are of minor importance.

It is almost certain that if, knowing what we do now, we were called upon to choose the most advantageous location for a city to do the same line of business that Pittsburgh does, and were not influenced at all by what has been done in the past, we would not locate this new city where Pittsburgh now stands. It would probably be laid out somewhere along the lake. That is, if our investigation convinced us that the Lake Superior ores were to be depended upon for an indefinite period. Some such opinion must have been in the mind of Tom Johnson when he laid out the new plant of the Lorain Steel Company at Lorain, Ohio, moving from the old site in Johnstown, Pa., where he had extensive capital invested in a similar plant.

While it is true that Pittsburgh has made wonderful strides in the past 30 or 40 years, her growth when compared with the growth of this country at large is not so phenomenal as would at first sight appear. If we look up the statistics we will find that Pennsylvania has for a long period produced about one-half of the pig

iron of the United States; and that in the last ten or 15 years her production has not increased any more rapidly than the rest of the country. In fact in the last five years there has been a slight falling off.

(To be continued.)

The New York Machinery Market.

NEW YORK, July 24, 1901.

Widely diversified reports are to be heard in the machinery district regarding the present condition of business. The machinists' strike being a thing of the past, as far as the great majority of firms are concerned, the trade is getting back to the regular working basis, but it will be some time before everything will have been placed back on the ordinary routine. A number of shops, notably those located in Cincinnati, which were closed down for a number of weeks on account of the strike, are now so rushed with back orders that it will be impossible for them to take on new work for some time. Conspicuous among these is the Cincinnati Machine Company, who captured the milling machine end of the British Westinghouse deal, involving some 60 machines, just before the strike was inaugurated. Shortly after the strike had started this concern received an order for a large number of machines from a New Jersey electrical instrument manufacturer and together with other unfilled orders they have now to build upward of 100 machines to catch up with the trade. We are informed, however, that the strikers have come back to this shop and that now they are running full force.

The Niles-Bement-Pond Company, who control the major portion of the heavy machine tool trade, were also rather seriously affected by the strike, but are running as usual again. This was in the face of a good demand for heavy tools, and when stocks were rather low. Consequently very long deliveries are now named on certain types of those machines. Steam hammers are particularly scarce, as are also punches, shears and lathes, bending rolls, &c. Boring mills and slotters in certain sizes are not so scarce. Just now the heavy tool trade is experiencing an excellent demand from the large Western railroads.

While in the exceptional instances cited, everything wears an extremely bullish aspect, such members of the trade who either were not seriously hampered by the strikes or who gave in at the start are complaining of the dullness of business. No important work seems to be in sight and only small orders for straggling lots comprise the business going through.

The most important item for the week under review was the placing of two additional orders by the British Westinghouse Company and the awarding of an additional order for tools to be placed in the Rock Island Arsenal. The British Westinghouse orders were for boring mills and went to the Bullard Machine Company of New York and Bridgeport and to the Binsse Machine Tool Works of Harrison, N. J. The details of the Bullard transaction have not been announced as yet, but it is said that the order was a very large one. The Jersey company's order was for six large horizontal machines. The latest award made in connection with the Rock Island job went to Pratt & Whitney. It was for $50,000 worth of profiling machines, making $140,000 worth of work that the Pratt & Whitney Company secured out of this deal.

That the Acme screw machine is taking hold in foreign fields is evidenced by the fact that the Prentiss Tool & Supply Company last week obtained an order from a large English concern for a number of machines.

On several occasions mention was made in these columns of a proposed plant to be built on the Atlantic Coast by the Allis-Chalmers Company. Official confirmation is now at hand in the shape of action of the Board of Directors several days ago. At this meeting it was decided to invest $1,200,000 in the new plant, as well as to spend $2,500,000 on the new Allis plant at Milwaukee. The Atlantic Coast plant is to be utilized in the building of engines and mining machinery for the export trade. At last reports the exact location for the Eastern plant had not been decided.

It is reported that the Bullock Electric Mfg. Company will not only build extensively to their Cincinnati plant, but will also build a plant in England. George Bullock, president of the concern, has sailed for England, where he will make preliminary arrangements for the location of the new works. At Cincinnati the extension will include a brass foundry, pattern shop and pattern storage building.

Some time ago announcement was made in this column of the intention of Sidney Shepard & Co. of Buffalo to remove to a new plant which is to be built on the outskirts of that city. We are now informed that plans for the building are now out, having been prepared by John H. Coxhead of 851 Ellicott square, Buffalo. The principal factory is to be three stories high and 138 x 80 feet. Other buildings will be 60 x 204 and 40 x 40. A boiler house and engine room will also be built. The concern are manufacturers of tinware, stamped and japanned, and aluminum ware.

Private advices received in the trade are to the effect that the operations which the Pullman Company intend putting through at Wilmington, Del., will be on a rather extensive scale, and that a large amount of machinery will be required. The contract for the buildings, of which there are to be 28, has been let to a Chicago firm. Specifications for the equipment are not out, however, as yet.

No awards have been made as yet in connection with the boilers and engines required in the power station of the Rapid Transit Railroad. It is expected that this matter will come up within two weeks.

The Otis Elevator Company have placed contracts for a 500 horse-power addition to their power plant at their Yonkers works. The boiler order was awarded to the Heine Safety Boiler Company, and the Buffalo Forge Company received an order for induced draft apparatus, including fans and engines.

Woolston & Brew of 39 Cortlandt street, New York, have received an order from Stone & Webster of Boston for one 600 horse-power and one 300 horse-power vertical compound condensing Corliss valve engine, built by the Ball Engine Company of Erie, Pa. The engines are to be installed in the new plant of the Minneapolis Street Railway Company.

Woolston & Brew, who also represent C. H. Brown & Co., have just sold to the John B. Stetson Company of Philadelphia three 600 horse-power Brown engines, and to the People's Railway Company of Wilmington, Del., two 450 horse-power Brown engines.

Proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until August 13, to furnish at the Navy Yard, Mare Island, Cal., a qauntity of air compressors, freight elevators, hardware, and boiler tubes. Blank proposals will be furnished upon application to the bureau or to the navy pay office, San Francisco, Cal.

Bids for constructing a pumping plant in the District of Columbia were received by the Commissioners, Washington, D. C., on July 13, 1901, as follows:

Allis-Chalmers Company, Milwaukee, Wis., plan A, complete with 12 steam engines and 6 steam boilers, $253,000; alternate bids, $231,000 and $241,000; plan B, $158,750, alternate, $146,000.

Camden Iron Works, Camden, N. J., plan A, complete, $323,000; B, $212,000.

United Enginering & Contracting Company, 13 Park Row, New York City, complete, plan A, $329,450; plan B, $239,375.

Bids will be received by the Commissioners of the Corporations of Calcutta Water Works Department until September 2, 1901, for the supply, delivery and erection of a pumping plant at the Pulta pumping station near Barrackpore, consisting of two pumping engines and four steam boilers, capable of delivering 1,000,000 gallons of water per hour to a maximum hight of 33 feet. Specification, general condition and plan of pumping station may be obtained upon application at the office of Fred. Gamsford, secretary of the corporation.

Purdy & Henderson, civil engineers, 78 Fifth avenue, New York City, have incorporated their business with a capital of $50,000. The incorporators are Corydon T. Purdy, Lightner Henderson and Charles F. Berger.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING JULY 24, 1901.

Cap'l Issued.		Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday.	Closing quotations.	Sales.
$10,000,000	Am. Bicycle Co., Com.....	.....	.....	.....	.....	.....	- 4¼	- 4¼	100
20,000,000	Am. Bicycle Co., Pref.....	.....	.....	.....	.....	.....	-20	-20	100
10,000,000	Am. Bicycle Co., Bonds....	.....	.....	.....	.....	.....	.....	.....	.....
29,000,000	Am. Car & Foundry, Com..	29¼-29⅞	29¾-30½	28⅞-30	27⅞-28½	29 -30	29 -29½	-29⅛	8,400
29,000,000	Am. Car & F'ndry, Pref.§..	.....	-85	-85	82⅝-83¾	83 -83½	-83	-83	1,400
7,500,000	Bethlehem Iron†.....	-60	.....	-60¼	.....	.....	-60	.....	423
15,000,000	Bethlehem Steel‡‡.....	.....	-22¾	-22½	22½-22⅝	.....	.....	22½-23	325
7,974,550	Cambria Iron, Phila.*.....	.....	-48	.....	-48	.....	.....	.....	105
16,000,000	Cambria Steel**.....	23¾-24	23⅞-24¼	24 -24¼	23 -24	-24	23⅝	-23½	1,610
17,000,000	Colorado Fuel & Iron.....	99½-101	98¾-99¾	98 -99¾	94 -95	95 -98	97 -97¾	-97	9,500
24,410,900	Crucible Steel, Com.....	.....	.....	.....	.....	.....	.....	21¾-22	.....
24,399,500	Crucible Steel, Pref.....	.....	.....	.....	.....	.....	.....	81¾-82	.....
1,975,000	Diamond State Steel‖§§...	3 - 3¼	.....	.....	.....	.....	.....	3 - 3¼	300
15,000,000	International Pump, Com..	37 -38	.....	.....	.....	.....	-37	-37	400
8,850,000	International Pump, Pref..	.....	.....	.....	-81	.....	.....	.....	100
11,000,000	International Silver.....	6½- 6⅞	- 6¾	- 6½	- 6½	.....	.....	6½- 7	500
10,750,000	Penna., new, Com., Phila...	.....	.....	.....	.....	.....	.....	48⅝-49	.....
16,500,000	Penna., new, Pref, Phila.§.	.....	-84⅞	-85	.....	.....	-84	83 -84	3,120
12,500,000	Pressed Steel, Com.....	-42	.....	.....	-41	40½-42½	42 -42¾	-42¾	2,900
12,500,000	Pressed Steel, Pref.....	84⅝-85¼	85½-85⅞	.....	.....	84 -84¾	84⅞-85⅞	-85⅞	2,410
27,191,000	Repub. Iron & Steel, Com..	19⅛-20	19⅛-20⅛	19⅛-19¾	17⅞-19	18½-19½	19 -19⅝	-19	6,400
20,306,900	Repub. Iron & Steel, Pref..	73 -74¼	73¼-74⅝	-73¾	72 -73½	72⅝-73½	73 -74	-73	300
7,500,000	Sloss-Sheffield S. & I., Com.	.....	.....	.....	33 -33½	-33½	-34	-34	500
6,700,000	Sloss-Sheffield S. & I., Pref.§	.....	.....	.....	.....	.....	.....	78 -80	.....
20,000,000	Tennessee Coal & Iron....	59⅞-62	60½-64½	59⅛-61½	58 -59½	58 -62	60 -62	-60½	21,800
1,500,000	Tidewater Steel‖.....	.....	6⅞- 7½	.....	.....	6¾- 6⅞	.....	6½- 6¾	110
506,473,400	U. S. Steel Co., Com.‖‖...	39½-41¼	39¾-41½	39¾-40½	38½-39½	38¾-40½	39⅞-41	-40¼	375,300
508,486,300	U. S. Steel Co., Pref.‖‖...	88 -89¼	88⅛-90	88⅛-89	87⅝-88⅜	87⅞-89¾	88½-89½	-88¾	128,400
1,500,000	Warwick I. & S.‖.....	.....	7 - 7⅛	.....	.....	.....	- 7	6½- 7	216

Preferred stocks 7 % cumulative unless otherwise stated. § 7 % Non-Cu. §§ New stock. ‖ Par $10. ‡‡ Par $50, $1 paid in. ‖‖ Authorized Capital $550,000,000 Common; $555,000,000 Preferred; * Par $50. ** $10.50 per share paid in. † 6 % guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph.

Bonded Indebtedness: American Bicycle Co., $10,000,000 sinking fund gold debentures 5 %; Cambria Iron Co., $2,000,000 6 % debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Diamond State Steel Co., property leased from Diamond State Steel Co. at 4 % on $1,000,000, $6.25 on Steel stock paid in, $1.25 called for June 1st, total capital $2,000,000; International Pump: Blake & Knowles S. P. Co. $1,000,000 6 %; Tennessee C., I. & R. R. Co., $8,367,000 6 %, $1,114,000 7 %, $1,000,000 7 % cu. pref.; Pennsylvania Steel, $1,000,000 5 % Steelton 1st, 1917, $2,000,000 5 % Sparrow's Point 1st, 1922, $4,000,000 consolidated, both plants; Bethlehem Iron, $1,351,000 5 % maturing 1907, interest and principal guaranteed by Bethlehem Steel Co.; Republic Iron & Steel, none; Warwick Iron & Steel, none; Colorado Fuel & Iron Co., Col. Fuel Co. Gen. Mort. 6 % $880,000, Col. Coal & Iron Con. Mort. 6 % $2,648,000, Col. Fuel & Iron Gen. Mort. 5 % $2,674,000, also outstanding $2,000,000 preferred stock; Sloss-Sheffield St. & I. Co., Sloss I. & S. first mortgage 6 %, $2,000,000, Sloss I. & S. general mortgage 4½ % $2,000,000. U. S. Steel Corporation $304,000,000 5 % gold bonds, also Am. S. & W. Co. $130,656, Federal Steel Co. $9,822,000 Illinois 5 %, $7,417,000 E. J. & E. R. R. 5 %, $1,600,000 Johnson 6 %, $6,732,000 D. & I. R. R. R. 5 % $1,000,000 2d D. & I. R. R. R. 6 %, $10,000 land grant D. & I. R. R. R. 5 %; National Steel $2,561,000 6 %

Iron and Industrial Stocks.

In the face of a very weak market in the general list, due to the crop situation, and in the face of the strike, the issues of the United States Steel Corporation have been steadily maintained and have fluctuated only within a narrow range. It is pretty generally understood that the Morgan interests are protecting the stock and that bear raiding will be discouraged.

	Bid.	Asked.
E. W. Bliss, common	145	152
E. W. Bliss, preferred	130	140
Cramp's Shipyard stock	83	85
Dominion Iron & Steel Company	31	31
Empire Iron & Steel, common	4	5
Empire Iron & Steel, preferred	33	42
National Enam. & St., common	26	28
National Enam. & St., preferred	85	88
New Haven	4⅞	5
Otis Elevator, common	33	36
Otis Elevator, preferred	97	98
Pratt & Whitney, preferred	85	90
U. S. Cast Iron Pipe Company, common	6	7
U. S. Cast Iron Pipe Company, preferred	34	35
U. S. Projectile	119	..
Va. C. I. & C., stock	9	10
Va. C. I. & C., bonds	44	48
H. R. Worthington, preferred	110	115
American Can Company, common	23½	24
American Can Company, preferred	74½	74½

The stockholders of the National Fire Proofing Company of Pittsburgh have voted to increase the capital stock of the company from $2,000,000 to $5,000,000 for the purpose, among other objects, of acquiring the following properties: The Canton Fire Brick Company, with plants at Canton Osnaburg, Ohio; the Lorillard, on the Raritan River, N. J., near New York, and the United States & Empire Company, at Raritan, N. J. Holders of stock, whether common or preferred, will have the privilege of subscribing for new preferred stock at par to the amount of 50 per cent. of their holdings, and will in addition receive a bonus of 25 per cent. of new common stock. The present capital is $1,000,000 of preferred and the same of common. By the above plan there will be issued $500,000 of new common stock and $1,000,000 of new preferred, the company receiving for the latter $1,000,000 in cash. This will swell the preferred to $2,000,000 and the common to $1,500,000. For the acquisition of competing plants there will be issued $1,000,000 of preferred and $500,000 of common, the total increased capital to be $5,000,000, of which $3,000,000 will be preferred and $2,000,000 common.

Dividends.—The Pressed Steel Car Company have declared a dividend of 1¾ per cent. on the preferred stock and 1 per cent. on the common stock.

The Belfont Iron Works Company of Ironton, Ohio, have declared a semiannual dividend of 10 per cent. The stockholders re-elected the old officers and directors.

The Colorado Fuel & Iron Company have declared a semiannual dividend of 4 per cent. on the preferred stock payable August 21.

The Jessop American Steel Plant.

We are officially informed that William Jessop & Sons, Limited, have definitely decided to locate their American plant at Washington, Pa. The plans have been completed by James Mahon of Chicago and have been forwarded to England for inspection. As previously stated in *The Iron Age*, the plant will not roll high grade steel bars, but will be devoted entirely to the production of merchant sheet steel. The capacity of the plant is to be about 8000 tons of finished product. It is expected to have the plant in operation by January 1.

Regarding the financial arrangements of the company our London correspondent states:

The American enterprise is to be carried on as a subsidiary company under the laws of Pennsylvania. For this new departure the directors have to provide a sum of at least £40,000. The company, it is said, have for many years been carrying on an extending business with inadequate fixed capital, the assets being very largely in excess of the paid up capital and the debentures, which at present amounts to £65,000. It is now proposed to issue debentures for £150,000 as part of an authorized charge of £200,000, and to call up the sum of £10 per original share; but the directors propose to pay a bonus of £5 per original share out of the reserve fund, and to divide the £50 shares (now £30 paid) into 10 shares of £5 each, with £4 paid thereon. This will yield a further sum of £38,435, which, with the proceeds of the new debenture issue, will suffice to clear off the existing debentures, provide what is needed for the Pennsylvania undertaking and discharge existing liabilities on loan and other accounts.

The Philadelphia Machinery Market.

PHILADELPHIA, PA., July 22, 1901.

There has been more or less holding off on new business in the Philadelphia machinery market during the past month, although the general tone is good and trade prospects in favorable condition. The effect of the strike of the International Association of Machinists is rapidly disappearing, the only remaining evidence being in the fact that some shops are extremely busy in getting out delayed orders. Inquiries have fallen off to some extent, but this is not unusual at this season of the year owing to the customary semiannual shut down for repairs and stock taking at many manufacturing plants, and the usual midyear holidays. The shops, however, are fairly busy and many have sufficient orders on hand to run them well into the fall months.

The foreign demand continues dull; a certain amount of business is always being done by some manufacturers, but nothing to indicate any general resumption of the trade in the machinery lines.

General deliveries are fair, although some delays are being caused by the inability of the manufacturers to get their supply of raw materials as rapidly as desired. The various foundries are probably not as hard pushed on deliveries as they were some months ago. The temporary suspension owing to the machinists' strikes at some of the machine shops enabled a number of them to catch up with their general deliveries.

The demand for heavy machine tools, compression machinery, &c., can hardly be said to be as active as it was, although a fair amount of new business is in the market and most of the shops are quite active. The same condition exists among the manufacturers of the smaller machine tools, &c.

Among the manufacturers and dealers in the smaller engines, boilers and general supplies inquiries fell off to some extent early in the month, but have since improved, and the trade on the whole has been considered satisfactory. Supplies for the machine shops, however, are not being taken in as large quantities as usual, but the indications for a good season's business are said to be favorable.

Prices remain unchanged, the prospect of any advance not being considered probable at the time, inasmuch as new business tends to hold off even at present prices.

Thos. H. Dallett & Co. have recently shipped a large duplex boiler shell drill for export to Germany, and have made numerous deliveries of other tools to local and nearby parties. Inquiries and orders continue satisfactory and all parts of their works are running full time.

The Pennsylvania Machine Company, who have recently removed from the Bourse Building to larger and more commodious quarters at 116 South Sixth street, have had a very satisfactory month, having taken a number of good orders, including a 20-inch back geared crank shaper for local delivery; two 7 x 8 inch horizontal engines, and a 5-foot radial drill for local and nearby delivery.

The Hess Machine Company, manufacturers of file making machinery, &c., are busy on a number of orders for export, principally to Germany, England, Russia and France. Domestic trade continues in fair volume. Recent deliveries include several sets of file making machines for export to Germany, and a number are nearly ready for shipment to France.

The Philadelphia Pneumatic Tool Company continue extremely busy. Inquiries and orders are of good volume and all departments of the plant are being operated to their full capacity. The foreign demand continues active, recent shipments having been made for export to England, Germany, Sweden, Denmark and Australia. Domestic deliveries continue numerous as usual.

The Franklin Machine Works, Incorporated, have had a large number of inquiries for their line of machine tools, and some very satisfactory orders have been taken. Trade indications are considered very favorable, a number of various tools being in course of construction.

I. H. Johnson, Jr., & Co. have recently shipped a number of their large sized lathes for delivery in the New England, Pittsburgh and local districts. Trade conditions, even though inquiries have slightly fallen off, are very favorable, and a number of orders for good sized lathes have been taken since the first of the month.

The Philadelphia Machine Tool Company continue busy in all departments. Inquiries are numerous and several good orders for standard machines as well as special ones have been taken. Recent deliveries include several presses for the Rock Island Arsenal, and a special rubber testing machine for the Brooklyn Navy Yord. A number of standard presses have also been shipped for local and nearby delivery.

The American Pulley Company report a very satisfactory condition of trade, a comparison of the first six months of 1901 with the corresponding period of 1900 showing an increase of sales in the Middle, Southern and Western States of 80 per cent. This is partly accounted for by the fact that very recently this company have enlarged their line of sizes to take in diameters above 24 inches, the diameter to which they were formerly limited. Pulleys are now made to 36 inches diameter, and will be made by October to 42 inches diameter. Foreign demand continues fairly active, shipment of nearly 1000 pulleys of various sizes having recently been made to England. Domestic deliveries continue numerous to all points.

P. Hollingsworth Morris has recently delivered to the Water Department of Atlantic City, N. J., a 3,500,000 gallon D'Auria pumping engine, and is building for Luigi D'Auria four 400 cubic feet capacity air compressors of the D'Auria type. Trade conditions are considered good and inquiries and orders have been numerous, and all departments of the works are being operated to their full capacity.

The Southwark Foundry & Machine Company report business in a very good condition, a number of orders for large and heavy machinery for iron and steel plants having been recently received. An order for three large engines for an electric light plant has also been booked. Trade in Weiss condensers continues active and a number are in course of construction.

Activity continues in every department of the Baldwin Locomotive Works. The full quota of men are being employed and if the present rate of manufacture is maintained the total number of locomotives built will materially exceed that of last year. Regular shipments on account of orders for the Pennsylvania, Philadelphia & Reading, Atchison, Topeka & Santa Fé, Union Pacific, and other railroads are being maintained as well as deliveries to individual parties.

The Energy Elevator Company have recently booked orders for a number of large carriage lifts, one 8 x 17 feet for delivery in Fairmount, W. Va., and another of about the same size for Pawtucket, R. I. A large freight lift is also building for a prominent hotel in Reedsburg, Wis. Orders for local and nearby deliveries have been very satisfactory, and a good season's trade is assured.

The J. W. Paxson Company continue very busy, some recent orders including a complete foundry equipment, cupola, ladles, &c., for export to Cuba. They are also furnishing the American Sanitary Company, Elizabethport, N. J., a full foundry equipment, including a No. 16 Paxson-Colliau cupola, sand blast machinery, cranes, blowers, rumblers, &c. An 86-inch steel Paxson-Colliau cupola, 18 tons per hour capacity, is also being built for the Bement-Miles Company plant in this city. The Connellsville Mfg. & Mine Supply Company, Connellsville, Pa., are also being supplied with a No. 12 cupola, rumblers, core ovens, &c., and three large 30,000 pounds capacity ladles are building for nearby parties.

The Neafie & Levy Ship & Engine Building Company continue very busy in all departments of their yard. Work on the three Government torpedo destroyers, and the Cruiser "Denver," as well as on the other vessels under construction, is progressing favorably. The keel for another new ocean going tug for the Philadelphia & Reading Railway Company, has recently been laid. She is to be of the same dimensions as the sea going tug "Tamaqua," built for the same company. A contract has also recently been signed for a steel steamer for

freight and passenger service, for the Weems Steamboat Company, Baltimore, Md. The vessel will be 190 feet long, 40 feet beam and 13 feet depth.

St. Louis Machinery Market

ST. LOUIS, MO., July 22, 1901.

The July business in the machinery trade in this city and territory is unprecedented—the largest in years. In fact, the whole past year is reported far above the average. Ordinarily the mills and shops shut down to make necessary repairs in the plants, but even this is too expensive under the pressure of rush orders. Every shop has all the orders it can handle, and in many cases double shifts are run in order to meet the demands. This is notably the case at the Fulton Iron Works, where a double shift has been worked for the past year, with no stopping point in sight. This firm are just completing the installation of a complete power plant for the St. Louis Transit Company.

The manufacturers in this city are almost uniformly of the opinion that the continued report of a crop failure in this section is greatly exaggerated. And while the excessive heat and lack of rain furnishes a topic for much discussion, there are still good indications of a fair crop. The scarcity of labor in this section shows a healthy condition. This is true both in the skilled and the unskilled trades. There is hardly a machine shop in the city where more men of all classes could not be employed. In some cases this condition is brought about by an increase in the equipment of the shop. This is notably true of the Hall & Brown Machine Company, where many new tools have just been added so as to bring the output of the shop up to what it was when the shops in this city were working under a 60-hour per week schedule, and prior to the introduction of the shorter 54-hour week. Such moves on the part of many other manufacturers have been a leading factor in the demand for more labor to run this additional equipment.

The Fairbanks-Morse Company, a company of varied interests, are handling a great deal of machinery of late and have about doubled their business within the past year, their greatest increase being shown in their gasoline engine trade. This company are now having plans prepared for a new six-story modern building, containing a floor space of 60,000 square feet. This arrangement will bring their warehouse and general offices into one building. They expect to occupy these new quarters about January 1, 1902.

The Firnholtz Brick Machinery Company are just closing one of their most prosperous years. They have just completed a modern brick factory for the Ferris Pressed Brick Company, Ferris, Texas. The plant will have a capacity of 40,000 brick per day. This company are also working up a large foreign trade, and they are daily in receipt of inquiries from foreign buyers. A large order from Mexico was recently received.

The Reliance Machine & Tool Works report business exceptionally good since the occupation by them of their new quarters. This company have just placed upon the market a novel roller machine for the purpose of kneading dough in large bakery establishments. A large order for these machines has just been received by them from the Welle-Brettler Bakery Company of this city. The machine is the invention of the Reliance people and will, no doubt, greatly increase their output.

The John Ramming Machine Company are just completing extensive repairs at their works, which, when complete, will greatly increase their capacity. This company have just put in a complete steel plant for the St. Louis Vitrified & Fire Brick Company, at Maryland Heights, Mo., consisting of one 266 x 16 boiler and one 20 x 40 Corliss engine. They have also ready for shipment one 20 x 40 Corliss engine and a battery of two boilers for a Texas cotton mill.

The National Metal Trades Council of labor unions is holding a convention in this city this week for the purpose of bringing about a closer affiliation of the metal unions of this country. The meeting will have no effect upon the peaceful relations that now exist between the employers and the employees in the machine trade in this city.

The Iron Molders' Union in this city is very much worked up over its failure to come to terms with the local foundrymen. The local molders' union has placed the entire matter in the hands of its Executive Committee, and another meeting is now being arranged to take place this week between the molders and their employers, and the wage question will be discussed. Quite a conservative feeling prevails on both sides and it is felt that an understanding will be reached and a strike avoided.

The Cleveland Machinery Market.

CLEVELAND, OHIO, July 22, 1901.

A combination of hot weather, labor troubles, and vacation season appears to have put a damper on business of all kinds. The results of the machinists' strike are now being felt indirectly, more than they were 30 days ago, despite the fact that trouble is nearly over. Certain manufacturers of power equipment say the past month has been the quietest they have known in many months. They are unable to guarantee deliveries promptly because of the large amount of business that has been delayed through the strike and which must be taken care of ahead of new business. People who have been held up on deliveries of certain machinery are delaying placing contracts for the balance of the equipment. A large amount of electric railway power house equipment which has been figured on to materialize about this time is being delayed for the above reason. The general demand for machine tools is also rather quiet, although some manufacturers say there has been an improvement in the demand during the past few days, coming from manufacturers who have delayed making purchases until the machinists' strike was settled. The strike among the sheet workers is being watched with much interest by machinery manufacturers. Some of them figure that if the trouble continues for a short time, it will cause a drop in the price of pig iron and thus help their business.

The three concerns who were principally affected by the machinists' strike are now running with practically full forces. The Variety Iron Works Company have followed the example of the Cleveland Punch & Shear Works and have applied for an injunction restraining the strikers from interfering with, or intimidating the present employees, from patroling the vicinity of the plant, and from posting or distributing posters or circulars warning all men to stay away from the plant. This is the outcome of a change which was made in the injunction granted two weeks ago to the Cleveland Punch & Shear Company. Judge Stone had enjoined the machinists from "posting pickets or employing other means calculated to have any man leave or refuse to enter the employment of the company." A few days after the granting of the injunction, the Court, upon the petition of the attorney for the strikers, struck out the last clause of the injunction, so that the injunction practically only covered the matter of picketing. Since that time the fences in the vicinity of the plants of the Cleveland Punch & Shear Company, the Warner & Swasey Company, and the Variety Iron Works have been covered with posters advising all machinists to keep away from these plants, a strike being on.

The Cleveland Punch & Shear Works say there is an improvement in actual business closed, as they are now able to take care of contracts. They have recently shipped the following tools: One 36-inch throat coping punch, one No. 2 metal saw and one bending and straightening machine to the Columbia Bridge Company of Pittsburgh; one 20-inch throat punch to Park & Lacey, San Francisco; one No. 2 cold saw to the Acme Machinery Company, Cleveland; one 12-foot arm radial drill to the Toledo Bridge Company, Toledo; one bending and straightening machine to W. H. Taylor & Co., Allentown, Pa.; one No. 5 bar shear to the Allegheny Steel & Iron Company, Tarentum, Pa. Contracts have recently been closed for the following: Benedict & Burnham Mfg.

Company, Waterbury, Conn., one pole cap press; Columbus Forge & Iron Company, Columbus, Ohio, through Alexander Gibson, Pittsburgh, one No. 3 bar shear; Erie City Iron Works, Erie, Pa., one 10-foot bending roll, motor driven; Randsome & Smith Company, Brooklyn, N. Y., through Manning, Maxwell & Moore, one 12-foot arm radial drill; Whitehead & Kales Iron Works, Detroit, one 15-inch throat punch.

The Brown Hoisting Machine Company are on the move. Their office building is being conveyed 400 feet north to face on St. Clair Street, to make room for the new plant, construction work on which will start at once. The offices will be enlarged by an addition 113 x 140, three stories high, of brick and stone, to cost $50,000. It will be furnished in magnificent style, making the finest office of a manufacturing establishment in the city. The company have placed contracts for their power house equipment consisting of two Ball engines sufficient to drive 250 kw. generators, the latter to be built by the Elwell-Parker Electric Company, this city, and for Cahall boilers with chain grate stokers to be built by Aultman-Taylor Company, of Mansfield. They have more business than they can attend to, the demand from foreign countries continuing strong. They have recently shipped a large hoisting and conveying outfit to Sweden.

The Acme Machinery Company say that inquiries and business are quieter than they have been in several months. They notice an improvement in foreign business, especially from England and Scotland, and they have recently made shipment of several large tools to these countries. They are filling an order for several large machines for the British Westinghouse Company. They are just moving into a large two-story addition to their plant, and are rearranging the equipment.

Foot, Burt & Co., manufacturers of multiple drilling machinery, say there has been a slight improvement in business since the passing of the machinists' troubles. They have recently shipped two large machines to the Lorain Steel Company, and one each to the Southern Pacific Railway and the Northern Pacific Railway.

The Cleveland City Forge & Iron Company report that the heavy forging business is rather quiet with prices very unsatisfactory. They recently turned down a very large order for heavy engine forgings because the figure required would not insure a fair profit.

The Garrett-Cromwell Engineering Company will shortly close contracts for the power and other equipment for the plant of the Colorado Fuel & Iron Company, for which they are engineers. They have closed a contract with the local offices of the Babcock & Wilcox Company for a battery of 12,000 horse-power of boilers for the St. Clair furnaces, for which they are engineers.

The King Bridge Company say that the bridge business is in a satisfactory condition. They have recently closed contracts for bridges for the municipalities of Akron and Miamisburg, Ohio.

R. Rosenstock & Co., engineers for the Findlay & Southern Electric Railway, are completing plans for the power house equipment, which will be very large, as the road will be one of the longest in Ohio.

The Automatic Refrigerator Company, manufacturers of refrigerating machinery, are preparing to move into a new factory building which is being erected near their present establishment.

The W. S. Taylor Company are erecting a large addition to their present plant.

The Sharpsville Borough Council will within a few days give out contracts for new machinery for the borough water and electric light plant. They have also advertised for bids for the erection of poles and wires for electric lights in parts of the borough not now covered by the service.

The report that two of the blast furnaces of the Edgar Thomson group, at Bessemer, would be taken out next month to be rebuilt is not correct. One or two of the Edgar Thomson furnaces will soon have to go out of blast for repairs and relining, and when this occurs the stacks taken out will be rebuilt and modern equipment added. Furnace "H" of the Edgar Thomson group, referred to in the report as one of the stacks that would go out, is in good shape and will likely continue in blast for several years yet. This furnace several months ago had made over 1,000,000 tons of iron on one lining, and bids fair to make 1,500,000 tons before it has to be taken out. This stack has beaten the world's record for continuous blast and output.

OBITUARY.

NOTES.

HENRY CURTIS BANGS died at his home in Providence, R. I., on the 8th inst. He was born in Middlesex, Vt., his parents afterward removing to Cape Cod, Mass., where he grew to manhood. When about 18 or 19 years old he went to Providence, beginning his business career as a clerk in the Merchants' National Bank of that city. Three or four years later he became identified with the Congdon & Carpenter Company, Providence, founded in 1790, dealing in iron, steel, heavy hardware, &c. In 1882 Mr. Bangs was given an interest in the firm, and when the business was incorporated in 1892 he was made a director and the company's secretary. He was a director in the American National Bank, director in the American Screw Company, and had served as president of the New England Iron and Hardware Association.

SIMEON L. ROGERS, a descendant of the original Rogers who made a reputation in the silver plating trade, died July 21 at Lake Compounce, Conn., a summer resort near Hartford, from the effects of a stroke of apoplexy. Mr. Rogers was about 55 years old and was a son of Simeon S. Rogers, who, with his brother, William Rogers, was among the pioneers in this country in the business with which the Rogers name has been so prominently identified. The G. H. & S. L. Rogers Company, of which the subject of this sketch was vice-president, were formed last spring, the principal individuals of which having been formerly identified with the William H. Rogers Mfg. Company until their absorption by the International Silver Company.

ROBERT ALEXANDER RUTTER died at his home in Brooklyn, N. Y., Sunday, July 14, 1901, of softening of the brain. Mr. Rutter was born in Baltimore, Md., in 1844. He came to New York at an early age and was connected with Barton, Alexander & Waller for some years, and then went to San Francisco, Cal., where he carried on a sporting goods business for three years. Returning to New York he continued in the same business with his uncle, Mr. Alexander, until 1880, when he entered the employ of John Russell Cutlery Company, for whom he traveled 18 years.

NATHANIEL BREADING HOGG, a well-known business man of Pittsburgh, died at his residence in Allegheny on Sunday, July 21. Mr. Hogg was one of the organizers of the firm of Totten & Co., foundrymen of Pittsburgh, but now known as the George A. Hogg Iron & Steel Foundry Company.

FRANCIS C. LEA, aged 25 years, son of J. Tatnall Lea, died Wednesday at Charlottesville, Va., where he had gone in search of health. Mr. Lea was associated with his father in the iron ore business and was a graduate of Princeton University.

GEORGE H. NYE, founder of the Nye Steam Pump & Machinery Company, died on July 7 at his residence in Chicago, of apoplexy, aged 68 years. He was the inventor of the first steam vacuum pump.

ARTHUR ORR, builder of the coining presses for the United States Mints, and known as one of the most expert machinists in Philadelphia, died July 17 at his summer home at Moorestown, N. J., aged 84 years.

PATRICK H. KELLY, president of the Kelly Boiler & Sheet Iron Works, New Orleans, La., died at his home in that city on July 8 at the age of 47 years. Mr. Kelly organized the company that bears his name in 1897.

HARDWARE.

THE course of business during the depression a few years ago has brought into question the maxim that "Competition is the life of trade," and has driven many thoughtful men to the belief that unrestricted competition is a greater evil than no competition at all. More than any one cause it has brought about that concentration of the day which primarily is an effort to escape the conditions which were proving disastrous to many manufacturers. From the very nature of this competition eras of destructively low prices were succeeded by equally disastrous booms—one evil thus trying to correct another. Under the law of self preservation manufacturers sought a more stable method of conducting their business. As warfare has been tried—most unsuccessfully—manufacturers have concluded to give co-operation a chance. That competition cannot be prevented and must always exist is realized, but they entertain the hope that the changed nature of the competition has the promise of better things.

Those who take this cheerful view as to beneficent efforts of the consolidation movement point to the railroads as an example, for they have simply blazed out the path that the industrials are apparently following. The control of the various roads is steadily being concentrated into the hands of larger and few systems, so that the building of new roads of any importance is not looked upon as probable, as the present systems will always furnish such ample facilities as to make new lines, except through new territory, unnecessary. The various systems, while distinct and in competition, are fast arriving at understandings with each other, so that cutting of rates is become rarer, and yet on the other hand the cost of handling freight and passenger traffic slowly declines year by year to the incalculable advantage of the general public. Coincident with this there goes on steadily an increase in speed, in comfort and even in luxuries that are afforded the traveling public at decreasing costs.

Apart from those who expect too much from the new condition which confronts the trade it is generally assumed that the prevalence in the market of strong consolidated interests will tend to secure stability of prices and mitigate some of the familiar evils caused by the intense competition which for so long a time characterized the trade. Whether or not this will be the case remains to be seen. It being granted that competition will continue, there must necessarily be a strife for business between the consolidations and their competitors, each of whom will be making earnest efforts to establish himself in the market. These influences in themselves are sufficient to rebuke the hope of those who fancy that consolidations will make a steady and regular market. In the strife for trade, too, it must be remembered that the large corporations in self defence, or for the further extension of their business or their power, may resort to a fierce lowering of prices in which values may fall, especially in view of economies and improvements in manufacturing methods, to a lower point than has been touched in the times of depression through which the trade has passed.

It is a mark of breadth of view that the National Retail Hardware Dealers' Association declines the suggestion that manufacturers and jobbers should contribute funds to aid it in carrying on its work. The association is wise in preferring to maintain an independent position. Contributions given in the way suggested might be an embarrassment in determining questions relating to trade practices and abuses and the proper method of meeting them. Contributions from those outside of the association would have a tendency to bias judgment and prevent the openness of mind and freedom of action which are essential to the carrying on of the important work which retail merchants are called upon to do for their protection and advantage. For certain of these abuses both manufacturers and jobbers are doubtless responsible. A dignified and independent attitude in a matter of this kind will meet with general approval and command the respect of the trade.

Condition of Trade.

The trade throughout the country are feeling the effect of midsummer with its naturally diminished trade, owing in part at least to the presence of the vacation season and the prevalence of hot weather. Notwithstanding these influences business continues in very good volume. Manufacturers report a large number of orders from both the jobbing and retail trade, but in most cases these orders are for moderate rather than heavy quantities. There is among the trade in general no serious distrust as to the steadiness of prices, and buyers are therefore covering their wants with reasonable liberality. In a few lines, especially those connected with the Wire industry, there is a disposition to purchase quite conservatively, as an impression is abroad that a reduction in price would not be surprising in view of the amount of competition which has developed and is either in the market or preparing to enter the market soon. In regard to Hardware, Heavy and Shelf, there is, however, a general feeling that the condition of the Iron market and the existing prosperity, which promises to keep business active and its volume large, will secure a substantial maintenance of prices on about the present level. This is on the assumption that there is no important disturbance, commercial or financial. The course of the strike of the Steel workers is closely watched and it is recognized that its long continuance would have an unpleasant effect on the market, interfering with business and perhaps causing a scarcity of material, which would be embarrassing in certain lines. The crop situation is the object of much solicitude, but, while it is to be feared that certain sections may suffer on account of the drought, it is substantially assured that the crops on the whole are such as will secure the agricultural classes a more than average return and furnish a basis for continued general prosperity.

Chicago.

(By Telegraph.)

Trade continues remarkably good. It seldom happens that jobbers find their facilities taxed in midsummer, but this is the case at present, and no indication is seen of a serious falling off. Jobbers are observing only some slight effects of the great damage to the corn crop from the long drought, which might be expected to seriously disturb business. A few orders for future delivery have been canceled, but not many. Jobbers are not concerned at such cancellations, as they are now chary about taking future delivery orders, because of the uncertainty as to whether they will be able to secure supplies of the materials of products thus sold. They are in fact finding rather a sharp demand from some quarters for immediate shipment of both materials and general goods sold for future delivery, the buyers

also fearing that they may not be able to get them later. The demand for strictly summer goods, such as Water Coolers, Ice Cream Freezers, &c., has been unprecedented, owing to the prolonged hot weather, and the supply is running short. Scarcity continues as noted in previous reports in many lines of Wire Goods, Sheet Goods, Tinware, &c. Stocks of Sheets and Tin Plate are getting badly broken and prices are advancing. The demand for Coke Tin Plates is especially heavy, and those having stocks are able to get a good premium. The Heavy Hardware jobbers are enjoying an increased trade in Iron and Steel, which is due to the cutting down of production by the strikes in important mills. This has thrown a much greater business on the local warehouses. The demand for the general line of Heavy Hardware keeps up remarkably well. Nuts have advanced $2 per ton.

NOTES ON PRICES.

Wire Nails.—The demand for Wire Nails is not large, and is confined in most instances to small lots needed for early use. Quotations remain unchanged, as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots	$2.30
To jobbers in less than carload lots	2.35
To retailers in carload lots	2.40
To retailers in less than carload lots	2.50

New York.—The demand for Wire Nails from store continues satisfactory for the season. Quotations are as follows:

To retailers, carloads on dock	$2.53
Small lots at store	2.60

Chicago, by Telegraph.—Manufacturers are beginning to feel the effect of the damage to crops in the Southwest, as shown in the falling off in orders from jobbers in the Missouri Valley. They are, however, having a good demand from other sections, which keeps the volume of business larger than usual at this season. Local jobbers report a very good business and no indication is yet observed of any weakening in prices. Carload lots are quoted at $2.45 and small lots at $2.55, with a concession to $2.50 to best buyers.

Pittsburgh.—There is nothing of special interest in the Wire Nail trade. As noted in this report last week, competition in the Wire Nail trade is becoming very keen and reports have it that some of the new concerns that are soliciting orders for Wire Nails are making slight concessions in prices, in order to secure business. It is possible the price of Wire Nails may be reduced before long, but nothing official as to this has been given out. Demand is dull and for small lots only. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots	$2.30
To jobbers in less than carload lots	2.35
To retailers in carload lots	2.40
To retailers in less than carload lots	2.50

Cut Nails.—The condition of the Cut Nail market remains unchanged. Demand is moderate and inequalities in price continue to be reported. Quotations are as follows, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

Carload lots	$2.00
Less than carload lots	$2.05 to $2.10

New York.—The store demand for small lots of Cut Nails keeps up in satisfactory volume. New York quotations for carload and less than carload lots are based on the above prices, to which Pittsburgh freight has been added:

Carload lots on dock	$2.13
Less than carload lots on dock	2.18
From store	$2.18 to 2.25

Chicago, by Telegraph.—The situation is the same as previously reported, the movement from stock being quite good at $2.35 for small lots.

Pittsburgh.—There is only a moderate demand for Cut Nails and the unevenness in prices before referred to continues. We quote, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

Carload lots	$2.00
Less than carload lots	$2.05 to 2.10

Barb Wire.—Demands for Barb Wire are less exacting, while in some sections of the country requirements have fallen off to a considerable extent. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots, Painted	$2.60
To jobbers in carload lots, Galvanized	2.90
To jobbers in less than carload lots, Painted	2.65
To jobbers in less than carload lots, Galvanized	2.95
To retailers in carload lots, Painted	2.70
To retailers in carload lots, Galvanized	3.00
To retailers in less than carload lots, Painted	2.80
To retailers in less than carload lots, Galvanized	3.10

Chicago, by Telegraph.—The end of the heavy and protracted demand is not yet in sight. Manufacturers are still in arrears on shipments and the local jobbers are receiving only a small portion of expected deliveries. They are obliged to distribute what they receive as best they can to satisfy their clamoring customers. Carload lots are quoted at $2.75 for Painted and $3.05 for Galvanized. Less than carloads are quoted at $2.85 and $3.15 respectively, with a shading of 5 cents to the best trade.

Pittsburgh.—Considering this is usually the dullest season of the year, the present demand for Barb Wire is referred to by the mills and jobbers as being fairly satisfactory. For domestic trade we quote: Galvanized Barb Wire, $2.90, in carload lots to jobbers, and Painted, $2.60. Terms 60 days net, 2 per cent. discount for cash in 10 days, f.o.b. Pittsburgh.

Plain Wire.—More satisfactory conditions exist in the Plain Wire market. While manufacturers have not entirely caught up with orders, shipments are made more promptly. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days:

	Base sizes. Plain.	Galv.
To jobbers in carload lots	$2.25	$2.65
To jobbers in less than carload lots	2.30	2.70
To retailers in carload lots	2.35	2.75
To retailers in less than carload lots	2.45	2.85

The above prices are for the base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances.

Nos.					Galvanized.
6 to 9	Base				$0.40 extra.
10	$0.05	advance	over	base	.40 "
11	.10	"	"	"	.40 "
12 and 12½	.15	"	"	"	.40 "
13	.25	"	"	"	.40 "
14	.35	"	"	"	.40 "
15	.45	"	"	"	.75 "
16	.55	"	"	"	.75 "
17	.70	"	"	"	1.00 "
18	.85	"	"	"	1.00 "

For even weight bundles, 50 pounds and over, 5 cents per bundle advance on above.

Chicago, by Telegraph.—The demand is strong and manufacturers are still considerably behind in filling orders. Jobbers report a very good movement from stock. Carload lots are quoted at $2.40, base, and small lots from stock at $2.50, with $2.45 quoted to the best trade.

Pittsburgh.—Demand continues large and there is still some delay in getting prompt shipments. The mills, however, are not as far behind in orders as they were some time ago. For domestic trade we quote:

	Plain.
To jobbers in carload lots	$2.25
To jobbers in less than carload lots	2.30
To retailers in carload lots	2.35
To retailers in less than carload lots	2.45

Galvanized Wire up to No. 14 is 40 cents advance on Plain; Nos. 15 and 16, 75 cents advance, and Nos. 17 and 18, $1 advance. Terms are 60 days net, with 2 per cent. off for cash in 10 days, f.o.b. Pittsburgh.

Cordage.—The market continues in an unsatisfactory condition owing to the difference in quotations. For Manila Rope on the basis of 7-16-inch and larger quo-

tations of 9½ to 10½ cents are made, with a rebate of ¼ cent for large lots. The quality of Rope at the various prices ranges from pure Manila of the best quality to pure Manila of short fiber, and also includes Mixed Rope. Sisal Rope on the same basis is quoted from 7 to 7¼ cents per pound, with ¼ cent rebate in large lots. Demand is moderate.

Glass.—The demand for Window Glass in the local market is light. Stocks in manufacturers' and jobbers' hands are referred to as moderate, and no weakness in prices is reported. Jobbers' quotations for domestic Glass are as follows:

	Discount.
Less than car lots, from store	80 and 20 %
Carloads, f.o.b. factory	85 and 5 %

Paints and Colors.—*Leads.*—There is a fair amount of Lead in Oil going into consumption, notwithstanding the usual midsummer dullness. Some of the manufacturing plants have shut down temporarily owing to the high price of Linseed Oil and the uncertainty of the future market. No change has been made in prices of Lead in Oil, and quotations are as follows: In lots of 500 pounds and over, 6½ cents; in lots of less than 500 pounds, 7 cents per pound. Some irregularities in prices are reported for large lots.

Oils.—*Linseed Oil.*—The Linseed Oil market is firm, and manufacturers having Oil are inclined to sell only in jobbing lots for immediate and nearby delivery. The demand is normal and confined to immediate requirements. Quotations are as follows: City Raw, 82 cents per gallon in lots of five barrels or more; 83 cents in lots of less than five barrels. State and Western Raw Oil, 80 to 81 cents, according to quantity. Calcutta Raw Oil, 85 cents per gallon. Boiled Oil, 2 cents per gallon advance on Raw.

Spirits Turpentine.—The market is quiet, and prices have declined in sympathy with lower figures at Southern points. Orders are limited in size at this point, and are confined to small lots, as large consumers are not in t' . market. Quotations are as follows, according to quantity: Southerns, 36½ to 37 cents; Machine Made Barrels, 37 to 37½ cents per gallon.

THE NATIONAL RETAIL HARDWARE DEALERS' ASSOCIATION.

WE have received the following communication from M. L. Corey, the secretary of the National Retail Hardware Dealers' Association, which relates to a suggestion made by a gentleman prominently connected with one of the State associations that manufacturers should contribute money to aid the National Association in carrying on its work:

While we appreciate the motive that prompted this letter, and he also states this was written without our knowledge or consent, our position on this point was plainly stated in the June issue of the *National Hardware Bulletin*, a quarterly publication sent regularly to every member of all the different States affiliated with the National. It reads as follows:

It has heretofore and will continue to be the aim of our association to accept no money to carry on our work outside of that contributed by our regular members or those dealers in unaffiliated States who hold honorary memberships. There are many manufacturers and jobbers who would willingly contribute for the advertising this would give them and other purposes not necessary to name, but if we are to succeed we must remain independent and under no obligations to any firm with whom our interests may clash.

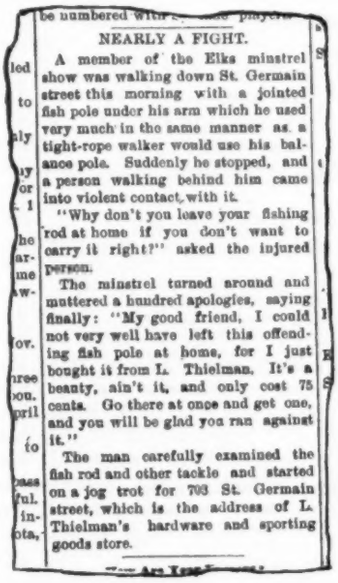
We are an organization of retail dealers exclusively, working for the individual and general advantage of our members, representing millions of invested capital, and ought to be self supporting. All concede that general results must be obtained by uniting all organized States and working through one head. Admitting this, then $1, or even $5, each should not be prohibitive.

Some of the manufacturers and jobbers have been trespassing upon legitimate and what should be exclusive retail ground. Others, encouraging and aiding illegitimate competition and promulgating new departures, calculated to eliminate the retail dealer entirely. We have been trying to get a better understanding and mend matters on a friendly, mutual interest basis between jobber and dealer. Our attempts have not always met with success, and an accumulation of unsettled complaints must be considered as nearing the point where the road forks.

We believe our contentions are right, and in united effort will win. These are a few of the reasons why the National Retail Hardware Dealers' Association cannot accept aid from any manufacturer or jobber.

A UNIQUE ADVERTISEMENT.

BESIDES the usual display advertisement in their local newspaper it is not unusual for Hardware merchants to occupy a few lines in the reading columns proper. In the latter announcement, as a rule, no attempt at originality is made, and many merchants are content to call attention in a simple and conventional way to their location or the general line of goods carried in stock. That there is opportunity for ingenuity in this as well as in other advertising respects and that a "reading notice" may be made very effective is illustrated by the one reproduced somewhat reduced herewith. L. Thielman, Saint Cloud, Minn., in whose interest the notice appeared, is a merchant who gives a good deal of attention to the matter of advertising his business, and his methods have made his store well known to the public in his vicinity.



NEARLY A FIGHT.

A member of the Elks minstrel show was walking down St. Germain street this morning with a jointed fish pole under his arm which he used very much in the same manner as a tight-rope walker would use his balance pole. Suddenly he stopped, and a person walking behind him came into violent contact with it.

"Why don't you leave your fishing rod at home if you don't want to carry it right?" asked the injured person.

The minstrel turned around and muttered a hundred apologies, saying finally: "My good friend, I could not very well have left this offending fish pole at home, for I just bought it from L. Thielman. It's a beauty, ain't it, and only cost 75 cents. Go there at once and get one, and you will be glad you ran against it."

The man carefully examined the fish rod and other tackle and started on a jog trot for 703 St. Germain street, which is the address of L. Thielman's hardware and sporting goods store.

THE LISK MFG. COMPANY.

THE LISK MFG. COMPANY, Canandaigua, N. Y., issue their twelfth annual catalogue, devoted to Lisk's patent anti-rusting Tinware. It contains a number of new features, including a *fac-simile* of their lithographed guarantee, which they insist upon being given with every sale of their ware by dealers. The catalogue contains 127 pages and illustrates a special line of Dinner Pails, 30 and 40 quart Dish Pans and heavy Milk Strainers, in addition to the regular staple goods heretofore shown.

THE BULLARD & GORMLEY COMPANY, 78 Randolph street, Chicago, who have for many years conducted a retail Hardware business, which has steadily grown until it has become quite heavy, have during the past two years also been developing a wholesale trade. They now have five traveling men who cover a considerable part of Illinois, Wisconsin, Iowa and a portion of Indiana. The company have met with such success in this direction that they may be expected to continue to enlarge their field of operation.

Notes on Foreign Trade

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE, NORFOLK STREET, LONDON, W. C.

The Half Year's Trade.

WHATEVER may be the reasons for it, there can be no doubt that during the first six months of this year the foreign trade of this country in metal goods and machinery has shown not only an enormous contraction in value, but also in volume. During the first six months of 1900 the value of exported metals and articles manufactured therefrom, except machinery and ships, amounted to $120,000,000; during the first half of this year the value has fallen to $99,000,000, a decrease of more than $20,000,000. It must also be noted that while there is thus a marked decline in the purchase of British goods in other countries, the purchase by Great Britain of manufactured articles from abroad remains very nearly stationary. The development of trade is almost precisely along those lines which I have many times indicated in the columns of *The Iron Age*, and it is impossible from a study of these trade returns to avoid the conclusion that America is selling where Great Britain has failed. We appear to be at the beginning of a trade slump in England; in Germany there is a serious trade depression; but American goods, both in Great Britain and Europe, are more ubiquitous than ever.

As an instance of what looks very much like an actual displacement of trade, it is noticeable that there is an actual decrease in the importation of ivory during the half year of $325,000. On the other hand, our exports of Cutlery show marked decreases to Russia, Sweden, Norway, Germany, Holland, Belgium, France, Spain, Brazil and Canada. And in connection with the same fact, British purchases of Cutlery have advanced from $40,000 during the first six months of 1900 to $85,000 this year. And in connection with the same subject we have to remember that Americans have recently been outbidding British Cutlery manufacturers at the Antwerp ivory sales. It is impossible to generalize even on these figures, no matter how significant they may be, but at least they point to some new region where high grade Cutlery is to be made for purposes of export.

Still more striking as an instance indicating displacement of trade is our continued increase in the importation of Hardware. During the first half of this year the value of our imports of Hardware amounted to no less than $2,500,000, compared with $2,100,000 during the same comparative period of 1900. And yet the manufacturers of domestic Hardware in this country are complaining that trade is dull. We continue to buy in growing quantities Electrical Goods and Apparatus, the figures for the six months amounting to over $2,750,000, compared with $2,100,000 during the first six months of the year 1900.

British Hardware Exports.

We exported Cutlery during the first half of the year to the extent of $1,500,000, of which no less than $200,000 went to South Africa, presumably for military purposes. Had it not been for these military orders, obviously the Cutlery trade would be in a very bad way. The same story is told of our exports of unenumerated Hardware, valued at $3,500,000, as compared with $3,750,000 during the first half of last year. Of this amount $325,000 worth of Hardware went to South Africa, again presumably for military or canteen purposes. It will thus be seen that while our trade is declining rapidly, the situation is partially saved by large orders from the War Department. How far, however, this decline of our trade is due to the war and the present stringency of the money market it is not for me to say. It is enough to observe that we have fallen back in our trade both in Cutlery and Hardware with practically every country of Europe and South America. Our trade, however, with Australia still continues to boom.

The exports of Galvanized Sheets during the period under review show a heavy decline from $10,000,000 to $7,500,000. Here, again, nearly all our customers have reduced their orders. There is, however, one important exception which cannot fail to interest American exporters, and that is that during the first half of this year we have doubled our sales of Galvanized Sheets to the Philippine Islands, an advance being shown from $50,000 to $105,000. Another important industry whose export trade is languishing is that of Tin Plates, there being a decline from $10,500,000 to $8,500,000. Here again our old customers, like Russia, Germany, Holland, France, Italy, Brazil, Argentina and Canada, have all temporarily forsaken us. It is interesting to observe that side by side with this decrease in the export Tin Plate trade comes the official announcement of great activity in America in the exports of American Tin Plates.

Capricious Marketing.

The moral of these returns seems to me to be that American manufacturers and exporters are at the present time gaining ground at the expense both of Germany and Great Britain. But it is necessary to bear in mind that if this advance is to be maintained as a permanent factor in the world's market steady pressure must be applied. The officials of the United States Steel Corporation over here inform me that the decision at headquarters to allocate a regular supply of Steel to Great Britain will enormously strengthen their hold upon this market. They would rather sell regularly a fixed amount than intermittently a larger amount. The same remark applies absolutely to all classes of American metal goods. Buyers must be certain that they will be supplied by a date which they can fix upon with some confidence, or they will revert to their old habits and buy from London or Birmingham. As things are now, if British exporters glean from the market reports that there is an exceptional activity among buyers in America, they presume upon this and themselves claim higher prices from their customers in Australia, India, South America and elsewhere, and although later on American exporters may quote lower prices, lower prices in themselves do not always gain the trade. Habit and mutual knowledge constitute a great factor in maintaining a trade connection. Far better sell 100 tons of Hardware regularly to any given district in any given period than 200 tons capriciously. The one trade is certain; the other is highly speculative.

The Australian Trade.

One or two advices from Australia point to a weakening of that market. For example, a mail advice from Melbourne of June 6 states that retailers' payments are said to be not quite as prompt as formerly. The same report states that the condition of the country north of the Dividing Range continues to give anxiety. The sowings in the Mallee are about up to mark as regards area, the water difficulty not having greatly disturbed agricultural operations, but throughout what is known as the Plain country, and in part of the north and northeast, the ground has been and continues to be so hard and dry that the usual area has not been completed. In Brisbane it is stated that stocks of general merchandise are abnormally low, especially for Barbed Wire and other heavy lines. Prices show less strength than in most of the other colonial centers, especially for Tin Plates, Nails and Galvanized Iron. A large business is reported from Auckland during May, especially in Iron Building Material and Shelf Ironmongery. It is further stated that a large trade is doing in Fencing Wire, and that German and American makers are getting the lion's share. Wire Nails are in good demand.

American Agricultural Implements.

I cannot forbear to quote the following letter, which appears in *Commercial Intelligence*. As an advertisement Implement manufacturers should use it for all it is worth:

> I run a considerable stretch of agricultural land, and seeing that I have at present no intention of being "Depressed," I go in for cheapness of production.

The mechanical aspect of affairs naturally looms large in my calculations. With what result? The result is, American tools are rapidly supplanting British in my section, much to my regret as to its necessity. Proof you ask?

1. Where is the British Mower that will, acre for acre, do its work at the same cost as a well-known American make? I don't know it yet.
2. The combined Horse Hoes and Earthers, &c., of another well-known American firm have recently enabled me to work with one horse instead of two, which is no small consideration when the work is done equal.
3. The combined tools reduce the capital required and set it free for other and better purposes.
4. By the use of light hand tools in market garden crops I have reduced the cost of hand labor by 5 or 6 shillings per acre (a good part of the rent), and look in vain for such tools in English catalogues.
5. I do not know of any English Hay Loaders or light double furrow Gang Plows of equal utility with those of other makers.

I will not trespass with further elaboration, but must sincerely hope that my conclusion that British agriculture may be restored by American machinery need not become universal by reason of the engineers' inability to manufacture goods that will help us.

Watch Your Freights.

It is stated that as a consequence of the great developments which have been made by the Hamburg-American and the North German Lloyd Steamship companies in their Eastern connections, an attempt will be made toward the end of the year to reduce freight rates and fares to all Indian, Chinese and Japanese ports. In order to avoid a rate war with English lines the reductions, at least for some time, will be in force from only German ports, so that it may be seen what quantity of freight from England, France or other countries is sent by way of German ports in consequence of the reduction in rates.

TRADE ITEMS.

THE JOLIET WIRE COMPANY, manufacturers of Woven Fencing at Joliet, Ill., will remain in control of the stockholders represented by C. E. Robinson as a result of the annual meeting held on the 15th inst. The question of control of the company had been the subject of contention for quite a long time. C. E. Robinson was elected president and treasurer and Fred. Bennitt secretary.

THE AVERY STAMPING COMPANY, Cleveland, Ohio, are offering the Never-Break Children's Safety Sled Skates for the winter trade, this being their third season. These Skates are made in four sizes, 6, 7, 8 and 9 inches in length, and are a boon, it is remarked, for young children who are not able to use single runner Skates. The Skates are made in one piece from sheet steel of a high grade, formed to the required shape by powerful machinery. They are heavily plated to keep them from rusting, have a secure fastening device, and each pair is packed in a nice pasteboard box, neatly labeled. Judging from the last two years' sales, the company expect a large demand during the ensuing season, and advise dealers to inquire for prices and place their orders as early as possible to avoid delay in shipment.

THE friends of the Standard Paint Company, manufacturers of the P & B Goods, New York and Chicago, are receiving through the mails a very cordial invitation to not only visit the P & B pavilion at the Pan-American Exposition, but to make it their headquarters for keeping appointments, receiving mail, &c. The convenient location of the P & B pavilion near one of the gates of the exposition and the unique character not alone of the exhibit itself but of the handsome building in which it is placed are attracting many visitors. The pavilion is constructed entirely inside and outside, walls, ceilings and floors, of the Ruberoid Roofing made by the company. Ruberoid enjoys the distinction of occupying one of the seven or eight of the individual exhibition buildings at the Pan-American. The pavilion is the one which attracted so much attention at the Paris Exposition.

FAILARIA LETTER.

FROM A SPECIAL CORRESPONDENT.

AN. OTION, managing director of Otions, Limited, retail Hardware merchants in Tubalcain, has just returned from a flying trip to Failaria. As he went to spy out that country, I hastened to find out his views on the Failaria Hardware trade for the benefit of the readers of *The Iron Age*. His experience, which follows, describes appraising

A BANKRUPT STOCK.

I was seated in the office of a Hardware friend of mine, relates Mr. Otion, when the telephone bell rang. Leaving me for a moment to answer it, he announced, upon his return, that the receiver for a bankrupt Hardwareman wanted him to be one of their appraisers. Scenting an opportunity to learn something of the nature of such a stock, I offered to assist in the capacity of clerk to write it down. After a conference with the other appraiser, my offer was accepted. The details were arranged and several days later we met the second appraiser, together with the receiver, at the store of the defunct Hardwareman.

THE LOCATION.

The store apparently was in the center of the retail district, fronting on one thoroughfare and extending in the rear to another street 100 feet or so back, thus giving four show windows. About half a block away was a second Hardware store, and within a radius of three squares three or four more, the population of the city being about 60,000. As the receiver was unlocking the door I noticed one window trimmed with tools laid upon manila wrapping paper; the other was set out with Enameled Kettles, Pots, Pans and Bird Cages. Inside the chill air cut like a knife, so while the boy built a roaring fire in the large Coal Stove in the center of the store we received our instructions.

OUR INSTRUCTIONS.

"Now, gentlemen," said the receiver, "while we want a fairly close estimate of the stock, it of necessity must be an estimate and not an exact tally. I would suggest that you mark the stock off in sections, thus that section of shelving running from the window to the wall case, call section 1. The one on the other side, section 2, and so on. Then mark each section off in tiers. You will then have tier No. 1 to 9 in section 1. This plan will help the receiver in going over the stock with a prospective buyer. Price salable stock a little under ruling wholesale rates, using your judgment in conference on all that is of doubtful value, including in inventory shelving, show cases and fixtures. Designate windows as window No. 1, No. 2, and so on."

A GUESSING CONTEST.

As soon as the receiver left we made a tour of the building from cellar to second story. Upon our return to the store room proper we gathered around the stove, which by this time was a comfortable, cheery color.

"Now for a guessing match," announced Mr. Jones, the other appraiser, picking up a piece of chalk off a counter and using the stove pipe for a blackboard. "I say the stock will go $8000, including fixtures. Who's next?" My friend said $7500. With the white characters standing out against the black surface of the pipe the work commenced in earnest.

DOWN TO BUSINESS.

Taking the Wash Boilers, Chamber Pails, and such stuff on top of the first section was simple enough, as was also the Bright Wire Goods and Shelf Hardware, only more tedious. The receiver's instructions were followed, and while no attempt was made to count Screw Eyes and such stuff, yet every box on the shelves was handled, opened and estimated. The first section was finished in half a day.

A VARIETY OF MAKES.

The evening of the first day found the appraisers up to the Builders' Hardware department. Among the shelf goods, Saws, &c., there seemed to be represented every jobber's brand in the country; the Locks and Trim-

mings were of one make, but every conceivable finish, and all unmatched. Solid Bronze Knobs of many finishes, worth in combination with sets from $1 to $2 each, but as they stood worth only so much old metal.

THE SECOND DAY.

The Kitchen Furnishings took up the morning of the second day. Each of the appraisers went over the same tier, counting and estimating, then comparing and compromising on the result. Often on a tier valued at $40 they were only 50 cents to $1 apart.

IN THE PATENT OFFICE

In this stock was represented about every Egg Beater, Broiler and Cake Cutter ever invented. One bin was piled to overflowing with patent Doughnut Cutters, and yet nothing out of the unusual beyond what can be found in most Hardware stores of any age, loath as would be their owners to admit it.

A CURIOSITY SHOP.

It was when the upstairs room was reached that the appraisers found some unusual and interesting propositions. In the room there was no shelving; packing cases with one side opened and piled along the wall answered for storing surplus stock of Tinware, Enameled Ware, &c. Here were found more of the Doughnut Cutters, box after box of them. In their original crates, covered with dust, as though undisturbed for years, were several dozen patent Gas Heating Stoves.

AMONG THE JUNK.

At this point one of the appraisers remarked that the owner was evidently preparing for his finish, in being so long on unsalable articles and short on staples of everyday demand. In one corner of the room Mr. Jones was taking the Wire Cloth, while my friend was overhauling the contents of some boxes he had pulled from underneath the Wire. "Did you get these?" he asked, indicating the boxes with his foot. "No," replied Jones. "There is only a lot of old junk there not worth taking." This brought about an investigation. Under a damaged lantern, bits of broken Locks and Hatchets, were found some 300 sets of Casters, worth any way $15. On the wall side were piled 12 crates of small Heating Stoves, not one of which was represented on the main sales floor.

A HOT TIME.

Here were found Gas Hot Plates, counted by the dozen, of every conceivable style and make, and some inconceivable, as the appraisers were some time guessing what certain parts of cast iron could be for. Not until various pieces had been assembled from different places could they determine that these also were Hot Plates.

A BIG DRIVE.

A large wooden box in the center of the floor was piled full of paper boxes containing Screw Drivers, in all some 15 dozen, and as many makes. Near by was a pile of patent metal Hammocks.

IN THE CELLAR

Below stairs, 400 pounds of White Lead, a quarter of it standard brand, represented the stock, no Linseed Oil and about 25 gallons of Dryer. One keg each of Wire Nails, 3d fine, 4 and 6 common, and 20 kegs of Fence Nails covered over with empty Glass boxes, some 15 dozen Axe and Sledge Handles, 200 pounds of Wrapping Paper and some Sash Weights, completed the cellar stock.

THE FINISH

The afternoon of the third day saw the completion of the inventory, which footed up $7,200. The work had been done behind locked doors, so there was no interruption. Now that the work was done less rigor was used. A traveling man and a representative of a Paper firm (who had been let in on the ground floor to the extent of $85) had been allowed to come in.

AROUND THE BIG STOVE.

It was nearing 6 o'clock and we were around the big stove in various positions—Mr. Jones perched on the coal box, where he looked down on the rest. The conversation turned upon the causes of the failure. "Why any sane man," exclaimed my friend, "would store that raft of Screw Drivers and Stoves away, is beyond me; if the drivers had been put in a bushel basket, marked 'Your choice 10c.,' they'd have gone a sailing."

"I never met the owner of this store," remarked Jones from his seat on the coal box. "He has a good room and a fine location; with these advantages all that was needed was reasonable judgment in buying, the maintenance of good credit and I don't see how he could fail down."

"This experience," concluded my friend, "convinced me that the old fashioned way of doing business, when 'a Dutchman's 1 per cent.' profit could be counted on, is dangerous, and that up to date methods not only in buying, but also in selling, are necessary to success."

J. CURLEY & BRO.'S CUTLERY PLANT.

J. CURLEY & BRO., 6 Warren street, New York, manufacturers, importers, manufacturers' agents and dealers in all kinds of fine Cutlery and related goods, have established their manufacturing plant in a building at the corner of Pearl and Water streets, Brooklyn, N. Y., it having been originally located in Connecticut. This factory is well equipped for the production of fine Pocket Knives, Razors, Erasers, Razor Strops, &c. They also make a specialty of repairing such Cutlery as Knives, Razors, Scissors, Shears, &c. Their efficiency in this line was well illustrated recently, when an expensive Pocket Knife, with inlaid gold scales, from a San Francisco mine owner, after having been given up by a number of Cutlery companies, finally came to them from Tiffany's and was satisfactorily repaired. They are also manufacturing a four-sided Strop for honing and stropping Razors which has been on the market nearly a century, the practical head of this part of the business being a man 83 years old, who has worked continuously on this special kind of Strop for the last 70 years. It has one side for honing and three leather sides for stropping. The blade steel used for the Pocket Cutlery is of the best quality, and of but one grade, the material being the same in the cheapest and most expensive kinds. Every blade is hand forged, those of the better grades being hand hammered directly from the steel rods, the cheapest blades being first stamped and then forged into shape by hand.

WOOD SAW RACK.

THE Buck Saw Rack represented in the accompanying cut is in use in the retail Hardware department of Morley Brothers, Saginaw, Mich. The arms from which the Saws are suspended are 12 inches long. The distance between the arms is 11 inches and the

Wood Saw Rack.

standard is 4½ feet high. The standard is of 1-inch pipe and the top pieces of ⅜-inch pipe. Holes were drilled through the top pieces, into which hooks were secured. The rack accommodates 12 Saws, any one of which can

be taken down without disturbing any of the others. The rack was designed by one of the firm's employees and is referred to as filling a long felt want.

TRADE WINNING METHODS.

ADVERTISING HODGE-PODGE.

BY A. NEXPERT.

AVAILABLE LINES.—Of course some staples must be carried which do not yield large profits, such as Nails, Wire, &c., and these should be offset by goods that are more profitable, to keep up the average. House Furnishings, Bicycles and Sundries, Sporting Goods, Electrical Supplies, Photographic Supplies, &c., can be depended upon to help do this.

* * *

SELDOM SOLD.—There are some goods for which there is but an occasional demand, and perhaps salable sizes or styles have all been disposed of. It will pay to push all dead stock off at any price. Then the merchant can prepare himself for future calls for these goods by obtaining illustrations and prices, so as to interest the prospective purchaser until he can get the latest quotations.

* * *

ORDER DEPARTMENT.—It has been found advantageous to make the fact prominent by frequent advertising that a merchant is in a position to order anything in his line for which there is not enough call to warrant carrying in stock. The merchant should be well fortified, however, with information, or know just where to obtain it, and impress the customer favorably, so that he can consummate the sale. It is an enviable reputation for a store to be known as the place where anything can be obtained.

* * *

HOGS.—Clearing out dead stock very naturally leads to the subject of disposing of season goods. Wide awake farmers believe, I am told, that it does not pay to feed shoats through the winter, as their increase in weight will not pay for the feed consumed.

* * *

CLEANING OUT.—One firm advertised in August "Are you going to take advantage of the big slump in Prices? All our summer Hardware, Refrigerators, Ice Cream Freezers and such. You've only a few days left." In September the same concern advertised: "The last call for the balance of Summer Hardware. Not much left, but if we've got what you want, you will get it very cheap." Early in October they advertised Guns and Ammunition, and later in the month Stoves and Ranges. That is what I call progressive advertising. The firm probably cleaned out the bulk of their summer goods, put the money into fall and winter stock and had space in which to display and store it.

* * *

COMMONPLACE.—Two advertisements, both from Western States, I have remembered because of assertions made in them. One showing an illustration of a cook Stove says: "We handle the best and most satisfactory line of Heating Stoves, Cook Stoves and Ranges found in the market to-day." The other says: "We can sell you Hardware for less money than any store on earth." Granting that these two claims are true, which I doubt, the wording is commonplace and does not carry conviction. In writing advertisements it is well to word them as if talking to customers and having to combat their arguments and prove assertions. Even if this is done, get away from commonplace wording. Here are three Stove advertisements which illustrate what I mean, and which in my estimation are ahead of the one criticised:

> A good housekeeper requires a good stove.
> The —— makes good housekeepers.

> The keynote to good cooking and even baking lies in the purchase of a —— Range.

> Buying a lottery ticket and getting a good Stove are two different things; you don't HAVE to take chances with the Stove—get a —— They're sure winners.

* * *

RECOLLECTION.—A poor Stove or a poor anything else is not a good recommendation of a store. "The recollection of quality remains long after the price is forgotten" is the basis one merchant buys goods on. Customers can be educated to the point of demanding quality rather than cheapness.

* * *

CHANGING ADVERTISEMENTS.—If it is thought advisable to advertise the same thing for a week or two, changing the wording and arrangement of an ad. makes it almost the same as new to readers. If a cut is used change its position in the advertisement. The sentence "He had a good home and he left it" might be paraphrased "He had good newspaper space and wasted it." One firm in New York State advertised Carving and other Knives for the table "this week," and kept the same advertisement running for over a month. Some merchants seem to think that when they have written an advertisement they have done it once for all, like buying a lot in the cemetery. Business and merchants stand an equal chance of being buried.

* * *

JOKES IN ADS.—A difference of opinion exists among merchants about attempting to make advertisements funny. One man would not put a joke in an ad. any more than he would allow his clerks to joke customers. Another equally successful advertiser believes in running in a joke occasionally to attract attention and cause comment. Here is a merchant that pays for an advertisement 18 inches long, 1 column wide, set in paragraphs of from 6 to 9 lines each, with no display except one line at the top and the firm's address at the bottom. Included in this space and just above the top line is a syndicate cut of a man and woman admiring a Heating Stove in a show window. A Mallet, an Axe and a Skate show dimly in the background behind the Stove. It is no joke to read the ad., but there are two jokes scattered through the advertisement, to lure the reader on, I suppose. The jokes are fairly good; here is one of them:

> "Tell me," said the teacher, "what is the difference between wrought iron and cast iron?"
>
> "Well replied Will, smiling, "the shoe worn by a horse is a wrought iron shoe, but when the horse loses the shoe from its foot it becomes a cast iron shoe."

This advertisement may have appeared more than once, for all I know.

* * *

LIBERAL ADVERTISERS.—A firm who use a large amount of newspaper space in advertising follow the plan of telling as plainly as possible the special merits of some particular article, preferably something that has special merit, or that is a novelty in its way, or that is really and truly cheap at the price, and whenever possible to accompany the same with a cut which accurately represents the article advertised, with the price. This is thought to advertise the business in a general way better than the regular stereotyped style of referring to a store as the place "to buy Hardware cheap." And at the same time it really increases the sale of the goods which are especially mentioned.

* * *

PRINTING PRICES.—Many dealers, especially in small towns, object to publishing prices, believing that the information thus given competitors enables them to cut. This may be true to a certain extent, but published prices often impress buyers with the idea that the goods are cheap, and the customers are frequently induced to buy when attracted by a price lower than that at which they suppose the goods are sold for.

SHOW WINDOW DISPLAY.

The trade are invited to contribute information in regard to methods which have proved satisfactory, with descriptions of attractive displays. Inquiries also are solicited, to which careful attention will be given.

HARDWARE STORE WINDOW DISPLAY.*

BY W. C. M'LEAN.

PART THREE.—TRIMS.

It is not the idea to give here lengthy nor complete descriptions of window trims, but rather to suggest exhibits and give ideas that may be utilized to a greater or less extent by Hardware dealers. Many people find that having the main scheme suggested the worst part of the work is over, as the minute arrangements and details generally come most easily and naturally.

SOURCE OF IDEAS.

Many of the catch phrases on the writer's cards have been gathered from the flood of advertising matter with which every dealer is deluged, and from this same source have been culled ideas for many displays. Trade-marks suggest ideas; catalogues suggest ideas. Every store is full of things to suggest ideas. *Keep the eyes open for suggestions.*

THE YEAR'S DISPLAY SCHEME.

Below is given a table or scheme for one window, as drawn up for the year, subject to local and other changes. Friday is trimming day. It is in preparation for Saturday, the heavy day. Therefore changes are based on the number of Fridays in each month:

January, 1. Axes.
2. Washing Utensils.
3. Enameled Ware.
4. Ten-cent goods.

February, 1. Ranges.
2. Cook Stoves.
3. Skates.
4. Carpenters' Tools

March, 1. Tinware.
2. Ranges.
3. Builders' Hardware.
4. Wheels and Sundries.
5. Paints and Brushes.

April, 1. House cleaning.
2. Poultry Netting.
3. Paints.
4. Wheels.

May, 1. Small Farm Tools.
2. Hose.
3. Mowers.
4. Wheels.
5. Tinware.

June, 1. Gasoline Stoves.
2. Fishing Tackle.
3. Refrigerators.
4. Oil Stoves.

July, 1. Independence Day.
2. Ice Cream Freezers.
3. Race week.
4. General summer display.

August, 1. Hammocks.
2. Screens and Screen Doors.
3. General window.
4. Oil and Gasoline Stoves.
5. Summer goods to close out.

September, 1. Labor Day.
2. Oil Cloths.
3. Bird Cages.
4. Cutlery.

October, 1. General Stove window.
2. Wood Stoves.
3. Soft Coal Stoves.
4. Hard Coal Stoves.

November, 1. Soft Coal Heaters.
2. Hard Coal Heaters.
3. Tea and Coffee Pots.
4. Thanksgiving.
5. Hollow Ware.

December, 1. Pre-Christmas.
2. Christmas.
3. Christmas.
4. New Year's.

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DESCRIPTION OF WINDOW TRIMS.

Below are given descriptions of about 30 trims suitable to the above schedule:

AXES.

Central figure for a display of Axes should be an irregular pile of small boxes, boards and pieces of wood nailed together and covered with wrapping paper. Red tissue paper for setting off both black and polished Axes is to be pasted to this so as to get a very wrinkled and puffy effect. Axes should be placed on this by means of square hooks caught into the eye. This central pile should take up almost all of the window, and, with the exception of a cluster of handled Axes at one side and of handles at the other, no other goods should be shown. The background and side wall should be covered with plaited cheese cloth, on the side wall the plaits radiated from a center, a breadth of red alternating with one of white. The rear wall ought to be all white, so as to set off the red pile. The part of the floor not covered by the pile ought to be covered by white puffed tissue paper. The pyramid would be wonderfully set off if it were backed in the two rear corners by the artificial palms so much in use nowadays.

As to cards, let it be said that a small price card should be on each style of Axe. A full sized card might be suspended from the ceiling overhead and directly over the pyramid. It might well bear a picture of a hooked nose farmer's face and a legend something like this:

> A SHARP man when he wants a SHARP Axe comes and trades with us. These prices cannot be beaten in SHARPEST competition.

WASH GOODS.

To show wash goods, make the central figure to be a woman working. A figure can generally be borrowed from a dry goods store. For the ceiling make a lattice work of Rope. Put an archway of Washboards on the side wall, inclosing a rack full of Wringers. Form a pyramid of Tubs and also one of Boilers in the background. In front and at one side place a box of Pins tipped on its side. Scatter some Pins around on the floor carelessly near the box. The same backing that was used in the last trim for the side and rear walls might be used again, placing loosely spread red cloth for a floor covering. As to cards, one or two half cards (14 x 22 inches) such as this would do well:

> "Climax." The Best $2.75 Wringer in Town. A Written Three-Year Guarantee.

Smaller cards may be used on Pins, Pails, Tubs, &c., giving prices. In this display a long white card was placed next to the glass and standing on the floor. It had a clock face, whose hands stood at 12, and bore these words: "Her Work is Done at NOON, for She has Good Tools."

ENAMELED WARE.

Green and White Ware is set off better by red cloth than anything else, while the Blue Ware is best shown with white surroundings.

The same kind of a side wall as before would do, since it was nearly all red. Have the back all red. Ar

the center to this display use steps to about one-fourth the distance up to the ceiling. Hang a profusion of articles from ceiling by means of fine wires. Hang such articles as Tea and Coffee Pots in front, Stew Kettles and Tea Kettles behind them, and Pails to the rear, placing those in front well up toward the ceiling and using longer wires as you approach the rear, until only room for a full show card is left between your last articles and the top of the steps. The card shown in Fig. 9 was used. Small price cards were placed on the articles.

10-CENT WINDOW.

What a number of things a Hardwareman has that can be shown in such a window. Use steps as before, only rising higher toward the ceiling. For background and side wall puffed white tissue, dashed with aluminum bronze, was used. The steps were draped with white cheese cloth. On the steps were placed in little groups the articles of one kind, and on the top steps pyramids were formed of Pails and Pans. Over the center and from the hub of a big wheel made of cattle ties hung a card with as big figures on it as it would hold, thus:

On the side wall of the window small japanned goods were arranged in geometric figures. These were set off in fine shape by the bronzed tissue paper.

RANGES.

For a Range window the side wall and background and floor were all of light green. The side wall was plaited as is shown in the illustration, Fig. 11. In such

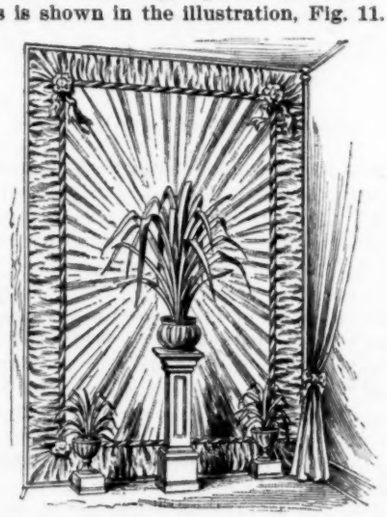


Fig. 11.—Trim for Side Wall of Window.

a display a palm on the pedestal adds greatly to the effect. Place in the center of the window a single Range. Such a trim as this needs two or three palms to set it off well. At one side, on a small easel, place your big card, one headed in large characters, "It's a Winner," and displaying a picture of a horse running, such as can be cut from a circus poster. Two bits of blue ribbon attached by a seal to one corner would add to the attractiveness. Lean against wall and palm jars smaller cards with such words on them as these: "Notice the 21-Inch Oven," "Use a Rule in Comparing Ours With Any Others," "See the New Dampers."

A MODEL KITCHEN.

A model kitchen always make an attractive show and is easily arranged. Use tiled paper for walls and linoleum for floor. The full roll can be hidden back of the portable back wall. Connect Range to imaginary chimney by Pipe and also connect Sink and Pump to floor by lead pipe. A woman at work would be a splendid addition to such a trim. For the center card such a phrase as this would be fine: "Solve the Servant Girl Question by Fitting Your Kitchen Properly."

CARPENTERS' TOOLS.

A unique and attractive method of showing Carpenters' Tools is to have the side and rear walls of white. On boards fastened upright to the floor by brackets, Fig. 12, display small Tools, preferably those of one kind on

Fig. 12.—Sample Boards Held in Position by Brackets.

one board. On the floor display the larger Tools. As a covering to show off the Tools on the floor and on the boards dark green would look well. The boards ought to be 12 inches wide and from 1 to 3 feet high. Cross Cut Saws arranged fan fashion over the boards in the center of the window would be a finishing touch. Fig. 13 shows how the sample boards may be arranged in

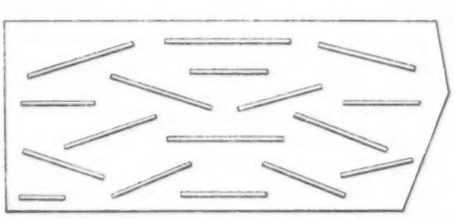


Fig. 13.—Arrangement of Sample Boards in Window.

the window. If as many are used as shown, the ones in the back of the window should be taller than those in the front.

TINWARE.

For a Tinware window a Wind Mill may be used as a central figure. The frame work may be of thin boards, the wheel of two boards crossed. The whole should be placed on a pedestal and covered with red cheese cloth. Bread Tins fastened side to side are to be nailed on the arms, while the body of the mill should be covered in like manner with square Tins, Basins, &c. A pretty effect will be given if a doorway and two windows in the mill house be covered with red tissue paper and a light be placed inside at night. To secure a good effect the lights in the window should be quite dim. The success of this display will be increased if a motor be called into use to make the wheel revolve. The walls in this display should be red. Fasten Tinware to same in designs, and also place piles and pyramids of it on the floor. Use the small round price cards.

HOLLOW WARE.

The steps should be called in for a display of Hollow Ware. Drape them loosely with light green cloth. Much the same arrangement of walls and ceiling and goods may be made as for Enameled Ware previously described. Fig. 14 gives a suggestion of an adaptation once used by the writer to show these goods. Plumbers' Chain was used to make the web. The spider, held against the glass by the tension of the Chain, has the appearance of being on the outside of the window, and almost every passer by takes occasion to see how it is held there.

A good catch phrase for this trim is: "No flies on this ware."

This window, as decorated by the writer, was much

spoken of and created as much interest as any window he has ever trimmed.

HOUSE CLEANING WINDOW.

For a house cleaning display the walls and all drapings look well of pure white. Arrange steps across the corners, and for a central figure have a big clock face made of two concentric circles of very small strips of wood. The outer circle 5 feet in diameter and the inner

Fig. 14.—The Spider and His Web.—Hollow Ware Display.

one 4½ feet. The figures are made of Scrub Brushes fastened across these circles. The hands are made of wood and painted white. Just below this a white puffed tissue paper covered board should be placed showing letters made of papers of Tacks and forming the words "Time to clean house." This clock ought to be near the glass. On the steps should be placed an assortment of House Cleaning Tools, Pails, Mops, Brushes, Tack Hammers, Carpet Stretchers and Beaters. Dust Pans may be fastened to the side wall. A fan like cluster of Dusters and Brooms between the two steps and against the back wall completes a surprisingly profitable display for that week so sure to come to every housewife—house cleaning week.

BICYCLES.

An attractive display of Bicycles can be made with a color scheme of red and white. As in Fig. 15, place an

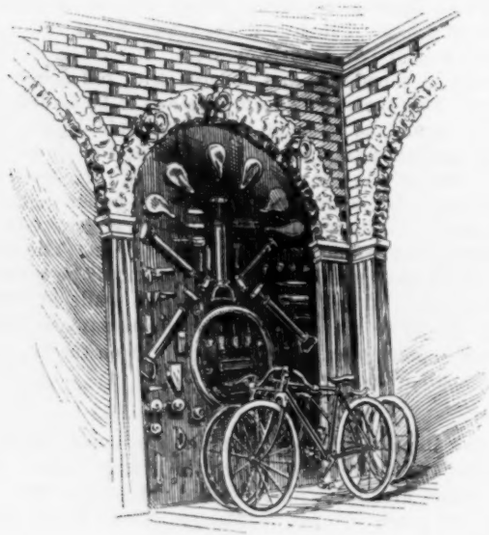


Fig. 15.—Bicycle Display.

arch on side wall and one in the rear. The above arches may be made of closely woven lattice of red and white paper. Let the arch in the rear open into the store. A good effect may be secured by placing an inclined plane in the window, extending into the store through the open arch in the rear. On this mount a number of Bicycles so as to suggest a steady stream of them pouring into the window. Bells should be shown in the very front of the window. Lay them on a red cloth that is loosely laid on the floor near the glass. This display proved so profitable that it was kept in the window for two weeks. Not a day passed but that the outlay on the trim paid for itself many times over by the goods sold to people whose attention it attracted.

PAINTS AND OILS.

For a Paint and Oil window have the figure of a man (a borrowed suit of white overalls filled with straw) painting a sign on a large white board. This figure should be placed in the center of the window and directly behind an archway of lattice work. Have this lattice more of an open weave than in the last described display. Have the painter standing on the top step of two steps, as shown in Fig. 16, the lower one and the floor

Fig. 16.—Window for Paints and Oils.

in front next to the window being used to show Paints in cans. Group the Enamel, as shown in the picture, and use a card "Enamel for Your Wheel, 20 Cents." The Carriage Paint may be grouped in the same way with a sign saying, "Make the Old Carriage Look Like New for 75 Cents." The same scheme can be carried on as far as the judgment of the decorator directs. Pyramids of prepared House Paints and of White Lead kegs can be made attractive with good signs. "We Can Paint the Town Red" makes a good central sign for the display illustrated. This should be on the back wall of the window.

On the outside corner post of the window may be hung boards such as a painter would put up if the front had been newly painted, and painted on in the usual rough fashion, as is shown in Fig. 17. The attention of

Fig. 17.—Sign on Window Frame for Paint Display.

nearly every one will be attracted by such signs. Red would do as well as anything for backing this display, as it would set off to advantage the white painter, the Paint cans and the white archway and lattice.

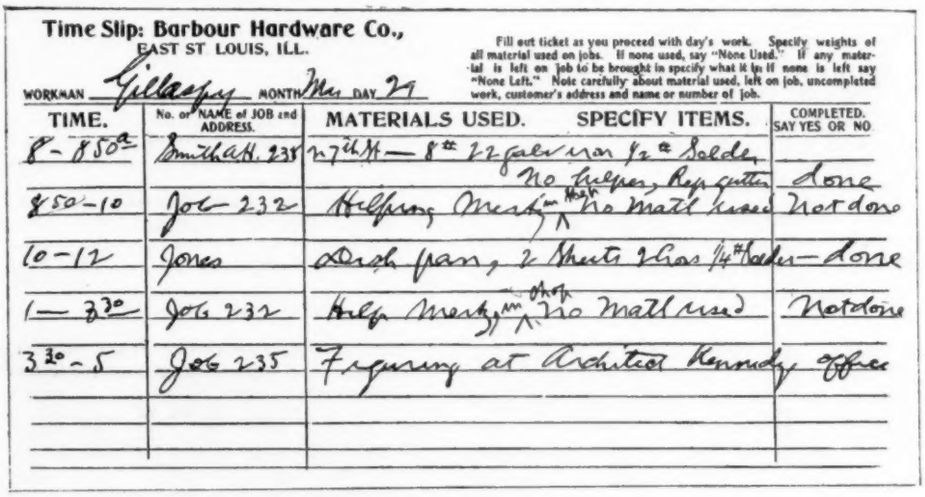
(To be continued.)

F. F. Wehsner has disposed of his Hardware, Stove and Farm Implement business in Wautoma, Wis., to John Sleath and Halbert Hanson, who will continue at the old stand under the style of Hanson & Sleath.

KEEPING TRACK OF SHOP JOBS.

THE system for keeping track of jobs herein described is in use by the Barbour Hardware Company, East St. Louis, Ill. Much attention has been given by them to the subject of ascertaining which were the money making departments of their business.

The company handle Stoves, Hardware, Furnaces, Glass and Painters' Supplies. In addition sheet metal work is done and Guttering, Skylights and Cornices are furnished. To separate the store and shop business slips are used, as shown in the accompanying cuts. Every day each workman fills out a slip as illustrated in Fig. 1.



Time Slip: Barbour Hardware Co.,
EAST ST LOUIS, ILL.

Fill out ticket as you proceed with day's work. Specify weights of all material used on jobs. If none used, say "None Used." If any material is left on job to be brought in specify what it is If none is left say "None Left." Note carefully about material used, left on job, uncompleted work, customer's address and name or number of job.

WORKMAN Gillaspy MONTH May DAY 29

TIME.	No. or NAME of JOB and ADDRESS.	MATERIALS USED. SPECIFY ITEMS.	COMPLETED. SAY YES OR NO
8-8.50a	Smith A.H. 235	27th M — 8" 22 gals iron 1/2 # Solder No helper, Rep gutter	done
8.50-10	Job 232	Helping Mentzer No matl used	Not done
10-12	Jones	Dish pan, 2 sheets 2 Gias 14" tubes — done	
1-3.30	Job 232	Help Mentzer No matl used	Not done
3.30-5	Job 235	Figuring at Architect Kennedy Office	

Fig. 1.—Time and Material Slip.

All material is accounted for as it is used, and the time and material are charged up as the jobs proceed. All contract work is known by a number, while small jobs are not given a number.

Job No. 232.

February 1.
Kehlor job.
Kennedy's office.

129 feet 20 inch Box Gutter IX Tin, 20c	*$25.80*
80 feet 14-inch IX Valley	*8.00*
2 Chimney Backs	*.50*
200 Tin Shingles	*4.00*
40 feet 3-inch Conductor	*4.00*
8 3-inch Elbows	*.80*
200 feet Ridge Roll	*16.00*
2 small Finials	*1.00*
	$60.10

Our job. March 1.

Louis, Contractor.

It will be seen that the last item on the slip in Fig. 1 is of a workman figuring on a job at an architect's office. The items are taken from the plans and copied on a job book, as shown above. The items are extended at retail prices, and the bid for the work is rendered in accordance with the total shown on the job book. As soon as notification is received that the company are the successful bidders the words "Our job" are written on the job book. The foreman then takes the items from the job book and distributes the work in the shop.

The foreman looks over the job book daily, and takes the work to the shop as it comes in.

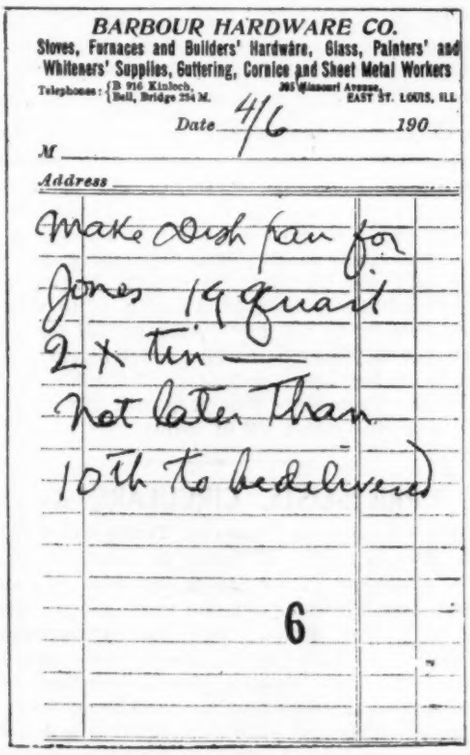
While working on a job in the shop the workman enters his time on the time slip as "On job." The time slips are posted each day on cards kept in a card index system form representing the job, and when completed, the total time and material are on one card. The percentage of profit is then added and posted on the books. When material is taken out of the shop for a job, only that called for by the contract is taken. If additional material is required it is entered on time slip as "Extra material used."

A portion of the time spent on the job No. 232 shown on the card is recorded on the second line of the time slip, Fig. 1. The "drop in trade" orders are taken on a duplicate charge slip, as shown in Fig. 2. The slip is twice as long as shown. The duplicate part is blank, with the exception of the number. When taking an order the blank portion of the slip is turned back, and with the aid of carbon paper between the two parts of the slip the order is written in duplicate. One portion of the slip is retained at the office, and the other part is hung on the foreman's hook. From this hook he gives out work as the men complete former jobs.

When the job is completed and the time slips are turned in for the day, time and material are put on the card from the index, and charged up on the books, the same as with contract work.

The job recorded in Fig. 2 is an order to make a Dish Pan for Jones, the time and material for which are entered on the third line in Fig. 1.

The half of the charge slip that is retained at the office enables the company to know how much work there is to be done, to see that no jobs are left undone,



BARBOUR HARDWARE CO.
Stoves, Furnaces and Builders' Hardware, Glass, Painters' and Whiteners' Supplies, Guttering, Cornice and Sheet Metal Workers
Telephones: {B 916 Kinloch, Bell, Bridge 284 M.} 305 Missouri Avenue, EAST ST. LOUIS, ILL.

Date 4/6 190

M

Address

Make Dish pan for Jones 14 quart 2 x tin — Not later Than 10th to be delivered

6

Fig. 2.—Duplicate Charge Slip.

to decide how much each job costs them, also how much each tinner makes for the company. If a workman fails to come up to the standard, he is cautioned, and if he continues to be under the average his wages are reduced, or he is discharged.

The plan has worked very satisfactorily and the 6 to 12 workmen take an interest in keeping up their average. It requires about 30 minutes of the bookkeeper's time each day to keep this record.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

T. C. Prouty Company, Albion, Mich., are enlarging and removing their factory from Midland and will be in the market for a large amount of new machinery, electrical supplies, steam heating fixtures, time recorders, overhead carrying systems, gas furnaces for case hardening and tool work, friction clutch pulleys, air compressor, power pump, and a large quantity of piping and plumbing supplies. They will be pleased to receive catalogues from the trade along this line.

McCredie Hardware Company have succeeded G. M. Hadduck, Tonkawa, O. T., and will continue the Hardware and Farm Implement business at the old stand. The new firm will be pleased to reserve copies of catalogues, circulars, &c., pertaining to their lines.

Callaghan and Richardson Company, Reed City, Mich., are about to put in a full line of Hardware and will appreciate copies of catalogues and price-lists relating to the general line, as well as Steel Ceilings, Roofing, &c.

M. Seller & Co., who are dealers in Stoves, Crockery, Glassware, Cutlery, Lamps, Tinware, Wooden Ware, &c., with stores at Portland, Ore., and Seattle and Spokane, Wash., are about to add a line of Hardware to their stock at Portland, and will value catalogues, price-lists, &c. They will conduct a strictly jobbing business and expect to handle a general line of Hardware.

Davidson, Bagley & Co., Memphis, Tenn., are a new firm, who expect to be ready for business by August 1. The members of the firm are R. L. Davidson, for 16 years with Benedict, Warren & Co., Fayetteville, Tenn.; Geo. S. Davidson, for nine years with H. G. Lipscomb & Co., Nashville, and Tom Bagley, Jr., formerly in the grocery business at Fayetteville. The new firm will conduct a wholesale general Hardware business and will be pleased to receive copies of catalogues, &c., from manufacturers in their line.

Newhall & Fenner, Manila, Philippine Islands, advise us that they are making a specialty of handling the products of American merchants and manufacturers, with a view to supplying the needs of retailers in that country. They would accordingly be pleased to receive two copies each of the latest catalogues issued, with prices and best discounts for export. If possible, they would also like to have information as to weight and space occupied by the goods when packed for export, in order that they may be enabled to intelligently calculate customs duties, ocean freights and landing charges at their end. They state that they will pay promptly in cash or draft against bill of lading.

PRICE-LISTS, CIRCULARS, &c.

UNION HARDWARE COMPANY, Torrington, Conn., New York office in charge of Tower & Lyon, 95 Chambers street: Catalogue of Ice Skates for 1901. The company remark that while making the same general line as in the past few years, they are presenting some entirely new high grade goods with special features. The new flanged blade, described on page 11, is applied to many numbers, and for it many claims are made. They also show new patterns in screw clamp fastening, new Lock Lever Club for ladies, new Swedish Racer and Extension Bob for children. A separate catalogue is devoted to Hockey Skates, to the design, finish and workmanship of which special attention is called. The point is made that while extremely light in weight, the superior quality of material used guarantees their strength.

W. H. COLEBROOK, SONS & Co., Syracuse, N. Y.: Descriptive price-list of their various Cements, Polishes, &c.

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THE CHICAGO HARDWARE DEALERS' PICNIC.

THE cultivation of sociability among Hardware dealers is one of the leading principles of the Chicago Retail Hardware Association. Sociability is promoted in a variety of ways, never being completely lost sight of even in the most important business meetings. One of the leading features of the strictly social side of the organization is the annual picnic, as on that occasion the members can relax completely from the cares of business and can include their families in the entertainment provided. The seventh annual picnic of the association was held on the 17th inst., at Fox River Grove, some 40 miles northwest of Chicago. Two special trains, comprising 23 cars, were required to convey the members, their families and their friends to the grounds, which were on the line of the Chicago & Northwestern Railway. The arrangements were in charge of the following committees:

Executive Committee: Anthony Engelhardt, president; W. B. Costello, treasurer; Fred. Ruhling, secretary; W. T. Gormley, H. E. Gnadt.

Refreshment Committee: H. C. Peppler, J. F. Borchardt, L. E. Steinagle, F. H. Schanze.

Transportation Committee: J. L. Smith, G. R. Lott, Levy Rosenberg, Fred. Kurtz.

Entertainment Committee: F. F. Porter, O. Stebbins, W. J. Krueger, H. Stuckart, G. A. Engelhardt, Otto Hagen, C. E. Peterson, Emil Sanders.

Games Committee: D. McLaughlin, A. L. Adam, Martin Engelhardt, Sig. Melhon, Hans Fehr, John Schubert, G. Pfeiler, C. A. Dalstrom.

The members of these committees all worked vigorously and effectively to make the seventh annual picnic one of the most memorable days in the history of the association. They were favored by good weather and a large attendance, and the arrangements were so well made that everything passed off smoothly.

Among the amusements of the day was a programme of races and contests of various kinds, which excited a great deal of interest. Prizes were donated by the following Chicago wholesale houses and representatives of Hardware manufacturers, several concerns contributing two or more prizes: C. Sidney Shepard & Co., E. C. Atkins & Co., Hibbard, Spencer, Bartlett & Co., Ranney Refrigerator Company, Geo. M. Clark & Co., S. Lyons, Schneider & Trenkamp Company, Geo. W. Trout & Co., Landers, Frary & Clark, Jacob J. Vollrath Mfg. Company, Bullard & Gormley Company, New York Belting & Packing Company, Brand Stove Company, Forest City Auger Bit Company, Geo. H. Bishop & Co., Barler Mfg. Company, L. Gould & Co., Geuder, Paeschke Mfg. Company, J. L. Perkins & Co., Cole Mfg. Company, the *American Artisan*, Lawton Cutlery Company, and Wells & Nellegar Company.

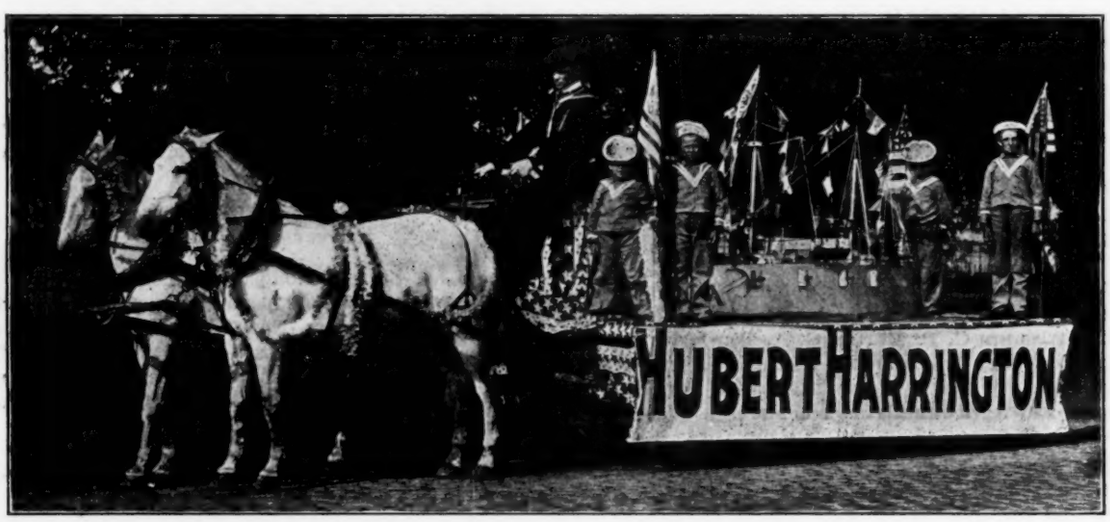
Special prizes were also donated by the Reading Hardware Company and the Ohio Tool Company.

Among the contests was a baseball game between the jobbers' representatives, captained by Geo. W. Trout, and the retailers, which was won by the jobbers with a score of 10 runs to 9.

The Chicago wholesale and manufacturing interests were well represented. Hibbard, Spencer, Bartlett & Co. were represented by R. J. Blum, J. Guldeman, J. H. Tieke, W. F. Waller, J. S. McDougall and A. Fritchie. C. Sidney Shepard & Co. were represented by G. L. Laemmar and J. F. Lethen. Wells & Nellegar Company were represented by Louis Pegelow and Judson Fuller. Geo. W. Trout & Co. were represented by Geo. W. Trout, W. F. Puls, Andrew Dickson, Otto Ollendorff and Adolph Hassman.

Among other salesmen present were the following: E. O. Geschwind of Landers, Frary & Clark; John J. Sinzich of Geo. H. Bishop & Co., W. C. Matthews of the Reading Hardware Company, Thomas Bowler of the Lawton Cutlery Company, Wm. G. Miller of the Ohio Tool Company, W. B. Lyman of the Brand Stove Company, S. M. Perrigo of C. M. Avery & Co., Harry J. Searles of the J. L. Morris Stove Repair Company, M. B. Widener of the Cook & Van Evera Company, F. H. Warren and P. J. Hennessy of the Michigan Stove Company, J. F. Cannon of the New York Belting & Packing Company, A. C. Ohlendorf of the United States Steel Lock Company, W. S. Cutler of the Ranney Refrigerator Company, J. H. Batchelder of Geo. M. Clark & Co., Chicago; F. W. Cunningham of Manufacturers' Stove Repair Company; C. J. Fagen, Domestic Plating Works; Chas. F. Johnson and Hugo Langner, with T. C. Cunningham; Fred. E. Rebmann, L. Gould & Co., Chicago; F. H. Suter, Edwin Hunt's Sons; Carl Vollrath, Jacob J. Vollrath Mfg. Company, Chicago.

W. H. Bennett, manager of the Chicago branch of the Reading Hardware Company, was one of the leading spirits in stirring up entertainment and enthusiasm. He presented everybody with a good luck pocket piece, consisting of a 1-cent coin with an aluminum rim bearing good luck emblems and appropriate lettering.



U. S. Battle Ship "Garland."

U. S. BATTLE SHIP "GARLAND."

The float herewith shown was used in a fire festival parade at Fargo, N. Dak., by Hubert Harrington, Hardware merchant of that city. The materials used in the construction of the ship were such as could be taken from stock in the store and Tin shop. The ship was fully rigged, and was armed with two heavy Guns, eight Guns of lighter caliber and two dynamite Guns. After the parade the ship was displayed in one of the show windows of the establishment. The ship was built by Ole Oliver, head clerk for Mr. Harrington.

AMONG THE HARDWARE TRADE.

Blackwell Hardware Company have lately engaged in the retail Hardware, Stove, Tinware, Agricultural Implement and Vehicle business in Blackwell, O. T. The members of the firm are W. H. Michael and E. F. Mathis. The former was for many years with D. M. Osborne & Co., the last ten years as general agent and manager of their Denver, Col., house. From October 15 last to June 1 he acted as general agent at Wichita, Kan., for the Acme Harvester Company of Peoria, Ill. Mr. Mathis is from Monument, Col., where he was formerly engaged in ranching, &c.

Robinson Bros. & Co., Louisville, Ky., have incorporated their wholesale Hardware business with a capital stock of $150,000. They advise us that they have thoroughly organized their house and road force of salesmen, and expect to add to their number in the near future. They refer to their business as constantly increasing.

Hall & Torrey have succeeded Hedge & Hall in the wholesale and retail Hardware, Stove and Agricultural Implement business in Rockland, Mass.

Mobile Hardware Company, Mobile, Ala., have been incorporated with a capital stock of $10,000. The interested parties are G. P. Martin, G. A. Tonsmeire and J. A. Lewis. They will conduct a wholesale and retail business in Shelf and Heavy Hardware, Stoves and Tinware and Agricultural Implements.

Kidd & Spencer have succeeded William M. Kidd in the Hardware, Stove, Agricultural Implement, Sporting Goods and furniture business in Athens, Texas.

Hayfield Bros., dealers in a general line of merchandise, including Heavy and Shelf Hardware and Agricultural Implements, Farmington, Wash., have removed to larger and more commodious quarters.

A. Cording & Son have succeeded Miller & Jones, Hardware and Stove merchants, Gibson City, Ill.

The warehouse and carriage room of L. S. Dickinson, Fennville, Mich., were destroyed by fire a short time since. The loss is estimated at $1350, with insurance of $850.

J. C. Bell has disposed of his interest in the Hardware firm of Brelsford & Bell, Erie, Kan., to L. R. Kyle, and the style has been changed to Brelsford-Kyle Hardware Company, comprising F. N. Brelsford and L. R. Kyle, and his son, P. W. Kyle.

MISCELLANEOUS NOTES.

Richards & Sencenbaugh Mfg. Company.

Richards & Sencenbaugh, Aurora, Ill., have made several additions to their line of Door Hangers and Hardware specialties. These include house door hangers; barn, warehouse and fire door hangers, also U-shaped steel roller bearing barn door hangers. The company's catalogue No. 5 illustrates the foregoing articles, with list prices, together with other goods of their manufacture.

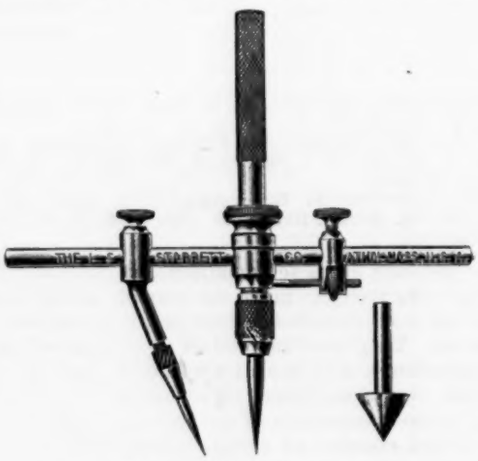
Spring Screw Driver.

The L. S. Starrett Company, Athol, Mass., and 126 Liberty street, New York, have just put on the market a series of screw drivers, or, more specifically, screw placers, as here illustrated, in three sizes, and known to the trade as No. 152. This finely made tool is of high grade steel, knurled, polished and nickeled. The series are lettered A, B and C, the former being the large one, B intermediate and C small. They are respectively 7, 5 and 5 inches long, actual size, and 3-16, 5-32 and ⅛ inch thick, the width of the blades being approximately the same. The main purpose of this tool is to compress the spring blades and by introducing them into the slot of a screw place it in any required position, when, after giving two or three turns where the hole is made by awl or other instrument, the screw can be driven to its place in the ordinary way with hand or bit screw driver. This device is mainly for work where the screws are so small they cannot be manipulated expeditiously by hand, or in machine parts, clocks, electrical instruments and other small work where a reach has to be made not possible with the fingers.

Spring Screw Drivers for Placing Screws.

Universal Dividers.

The L. S. Starrett Company, Athol, Mass., and 126 Liberty street, New York, have just put on the market the Universal Dividers, No. 89, here shown. The adjustable scriber holder is reversible and carries either a fine tempered steel point or a pencil lead held in a split socket by a knurled nut. With the holder turned outward work can be laid close to corners; turned inward, the points may be brought close together to scribe the smallest circle. With the 4-inch beam regularly furnished, 7½ inches and under may be scribed. An auxiliary beam, 13 inches long, is supplied when specially ordered, with which a 25-inch circle may be drawn, while for exceptional occasions an ordinary steel rod of any length and suitable diameter may be used for almost any radius. The V center point may be substituted for the regular point seen in the tool for getting quickly the exact center in scribing around a drilled hole. A fine adjustment is obtained by tightening the small milled top nut, loosening the center nut and adjusting by means of the lower vertical nut. The tool, with a 4-inch beam and V center point, weighs 1½ ounces, the illustration being about five-eighths size.



Universal Dividers No. 89.

The Yankee Ratchet Screw Driver.

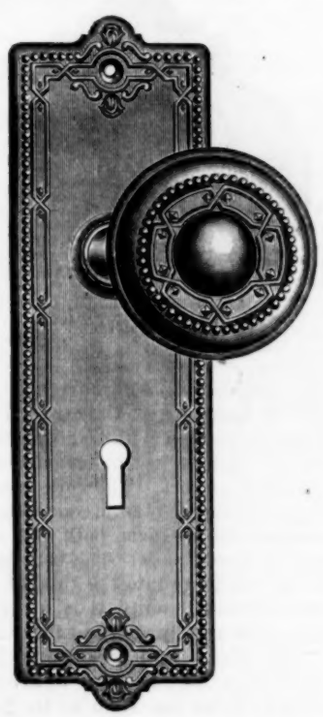
The screw driver shown herewith has a blade 5-16 inch in diameter, 1⅛ inches long, the entire length of the tool being 5¾ inches. The adjustment for right and left hand is made by pushing the shifter to opposite ends of the slot. When the shifter is placed midway in the slot the blade is held rigid as in an ordinary screw driver. The adjustment being across instead of in line with the blade avoids, it is explained, any possibility of the changing of the shifter while in use. The manufacturers

The Yankee Ratchet Screw Driver.

claim that the materials and workmanship in every detail are of the same superior quality found in other Yankee tools. The tool is put on the market by North Bros. Mfg. Company, Philadelphia, Pa., for whom John H. Graham & Co. are agents, 113 Chambers street, New York.

Mecca Design.

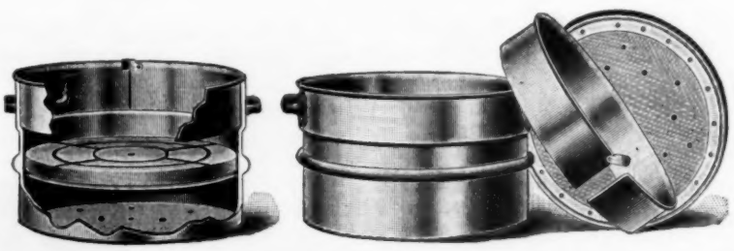
Russell & Erwin Mfg. Company, New Britain, Conn., and 43-47 Chambers street, New York, have put on the market the Mecca design, Moorish in character, in a complete line of door and window furnishings, an example of which is here shown. The materials used are wrought metal, real bronze, and steel, bronze plated. The door sets are catalogued with both rapid mortise easy spring wrought steel mortise locks and locks of the same description except that they have rectangular faces. The line includes front, vestibule and inside door sets, escutcheons, push buttons, sash lifts, push plates, &c.



Mecca Design in Wrought Metal.

The Sturges Seamless Cheese Hoops.

An illustration is herewith given of the Sturges seamless cheese hoops, manufactured by the Sturges, Cornish & Burn Company, Chicago. The hoops are made from one sheet of steel, without soldered joints or seams, and are then heavily tinned and retinned to make them smooth and serviceable. The manufacturers call attention to the fact that the hoops have no rough edges of metal to rust or corrode, no rivets in the bottom to rust out, no rivets at the top to break or tear the bandage, and no cracks or crevices for the accumulation of mold and dirt. The company now have five sizes ready for the market and other sizes are in course of preparation.



The Sturges Seamless Cheese Hoops.

The Modern Lemon Squeezer.

Gilchrist & Means, 43 South Canal street, Chicago, have brought out the lemon squeezer illustrated herewith. It has roller bearings and is so constructed, it is remarked, that a slight power applied to the handle will give 1200 pounds pressure against the lemon, thus ex-

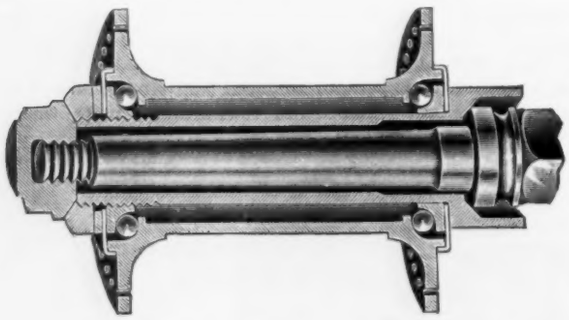
The Modern Lemon Squeezer.

tracting every particle of juice. It is pointed out that its construction is such that it will not splash juice over the operator, that it occupies no valuable space above the counter, and the handle hangs in the position shown in the illustration. All parts coming in contact with the lemon are made of solid polished aluminum, to insure perfect sanitary cleanliness. The other portions of the machine are handsomely nickel plated.

Ball Bearing Carriage Wheel.

L. M. Richardson, 152 Lake street, Chicago, is placing on the market a ball bearing steel carriage wheel embodying a device which makes it possible to fit it to any ordinary carriage axle without making alterations in the axle. A sectional view of the hub is given herewith.

The bearings, which are of the regular bicycle construction, are built around the periphery of a steel sleeve which is placed on the ordinary axle and is held stationary by a lock nut. The only measurements necessary when ordering wheels are the length of the axle from the shoulder to the extreme end and the diameter at the thread. The wheels are fitted with 1-inch solid or 1¾-inch pneumatic tires. The spokes are tangent, made from No. 11 steel wire, 48 to each wheel, and the hubs and spokes are nickel plated. The rims are referred to as being made of the best quality of steel. Wheels are furnished of any size from 32 to 40 inches. The wheels are adapted to use on ordinary vehicles. The wheel is named the Bray wheel, being the invention of Walter Bray, formerly a well-known Chicago wheelman, now located at Tipton, Iowa. It is expected that a large factory will be built this fall at Tipton for the manufacture of these wheels, which are now being made on contract. Agencies for the sale of the wheels are being established by Mr. Richardson.



Ball Bearing Carriage Wheel Hub.

The Star Corn Shock Compressor.

The Star corn shock compressor, herewith illustrated, is manufactured by Hunt, Helm, Ferris & Co., Harvard, Ill. Fig. 1 shows the compressor and Fig. 2 the method of using it. The manufacturers claim that with it one man can tie as much corn in the field as two men can without it, that the compressor has a supporting hook which holds the compressor in the shock while the operator is passing the rope around the shock of corn, and that the corn shock can be drawn as tightly as required and that the rope grip used on the compressor holds the shock in a compressed condition while the operator ties the shock with twine. The compressor is withdrawn and removed to the next shock of corn. The device is made entirely of malleable iron with the exception of the steel hook.

Fig. 1.—The Star Corn Shock Compressor.

Fig. 2.—Corn Shock Compressor in Use.

The Corker Caster.

A caster intended particularly for use on iron and brass bedsteads, herewith illustrated, has recently been placed on the market by the Mackie Steel Tube Mfg Company of Hammond, Ind., who have a city office and sample room at 166 Lake street, Chicago. The caster is made with the usual wooden wheel and metal stem, but differs from other casters in the construction of the socket, which is made of cork. The cork is inclosed in a strong metal frame stamped from one piece of sheet steel and so shaped as to form both top and bottom plates connected by a side piece. The cork is so tapered as to allow the top end to go into the tube of the bedpost easily, and, when forced in until it is in as far as the lower plate, it is held rigidly in the tube. After many experiments it was found that cork would be specially suitable for the socket, as the cork adheres firmly to the tubing and also holds the stem in its place, a projection being formed on the end of the stem for this purpose. The stem can be made detachable, or, if desired, it can be permanently fastened by enlarging the projection on the end.

The Corker Caster.

Current Hardware Prices.

REVISED JULY 23, 1901.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓@33⅓&10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Cut Prices.—*In the present condition of the market there is a good deal of cutting of prices by the jobbing trade, whose quotations are often lower than those of the manufacturers.*

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (May 3 1900), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Domestic, ₩ doz. $3.00....33⅓@33⅓&10%
North's.....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—

Ives' Patent.....25&5%
Taplin's Perfection.....50%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Eagle Anvils..... ₩ lb 7¼@7¾¢
Hay-Budden, Wrought.....8@9¼¢
Horseshoe brand, Wrought. 9½@9¾¢
Samson.....₩ lb 7½@8¢
Trenton, Wrought.....₩ lb 8¼@8¾¢

Imported—

Peter Wright's.....9¼@9¾¢

Anvil, Vise and Drill—

Millers Falls Co., $18.00.....20%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Hull Bros. Co.:
Lots of 1 doz.....25%
Smaller Lots.....20%
Lots of 3 doz.....30%

Augers and Bits—

Com. Double Spur.....70@..%
Boring Machine Augers.....60&10&10@70&10%
Car Bits, 12-in. twist.....60@60&10%
Jennings' Pattern Auger Bits.....50&10&5@60%
Ford's Auger and Car Bits.....40&10%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings 'list....40%
No. 30. R. Jennings' List.....50%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits 15&10@15&10&5%
Mayhew's Countersink Bits.....45%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....50&10%
Snell's Car Bits, 12-in. twist.....60%
Wright's Jennings Bits (R. Jennings' list).....50%

Bit Stock Drills—

Standard List.....65@65&5%

Expansive Bits—

Clark's small, $18; large, $26.....50&10%
Lavigne's Clark's Pattern, No. 1, ₩ doz., $26; No. 2, $18.....50&10%
C. E. Jennings & Co., Steer's Pat.....33⅓%
Swan's.....60%

Gimlet Bits—

Common Double Cut..gro. $2.25@2.75
German Pattern.....gro. $3.25@4.50
Double Cut, makers' lists.....50&5@50&10%

Hollow Augers—

Bonney Pattern, per doz. $11.00@11.50
Ames.....25&10%
New Patent.....25&10%
Universal.....20%
Wood's Universal.....25%

Ship Augers and Bits—

Ford's.....40%
Snell's.....40%
C. E. Jennings & Co.:
L'Hommedieu's.....15&10%
Watrous'.....40%

Awl Hafts, See *Hafts, Awl.*

Awls—

Brad Awls:
Handled.....gro. $2.75@3.10
Unhandled, Shouldered.gro.63@66c
Unhandled, Patent.....gro. 66@70c
Peg Awls:
Unhandled, Patent....gro. 31@34c
Unhandled, Shouldered.gro.65@70c
Scratch Awls:
Handled, Common..gro. $2.50@4.00
Handled, Socket..gro. $11.50@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

First Quality, best brands, $5.50@5.75
First Quality, other brands $5.25@5.50
Jobbers' Special Brands:
Good Quality.....$5.00@5.25
Best Quality.....$5.25@5.75
Cheap, Handled Axes.....$5.50@5.75
Beveled add 25c doz.

Axle Grease—See *Grease, Axle.*

Axles—

Iron or Steel.
Concord Loose Collar....4½@5c
Concord Solid Collar....4½@5½c
No. 1 Common.....3½@3¾c
No. 1 Com. New Style..3¼@4 c
No. 2. Solid Collar.....4¼@4½c
Nos. 11 to 14.....70@70&10%
Nos. 15 to 18.....75@75&10%
Nos. 19 to 22.....75@75&10%

5% cash 10 days.

Boxes, Axle—

Common and Concord, not turned.. lb. 4¼@4¼c
Common and Concord, turned..... lb. 4¾@5c
Half Patent..... lb. 8@9c

Balances— Sash—

Caldwell new list 50%
Pollman's 60%

Spring—

Spring Balances ...50&10@50&10@5%
Chatillon's:
Light Spg. Balances. .....40&10%
Straight Balances. 40%
Circular Balances 50%
Large Dial.....30%
Pelouze.....50%

Barb Wire—See *Wire, Barb.*

Bars— Crow—

Steel Crowbars, 10 to 40 lb., per lb.. 2 90@3.10c

Beams, Scale—

Scale Beams, List Jan. 12, '85.30&10%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters— Egg—

Standard Co.:
No. 5 Steel Handle Dover. ₩ gro. $6.50
No. 10 Cast Handle Dover. ₩ gro. $8.00
No. 10 Steel Handle Dover. ₩ gro $8 00
No. 15 Extra Heavy Steel Handle, ₩ gro. $15.00
Rival, ₩ gro.....$10.00
Taplin Mfg. Co.: ₩ gro.
No. 50 Small Family size.....$6.50
No. 100 Regular Family size.....$8.00
No. 102 Regular Family size tinned.....$9.50
No. 150 Large Family size.....$13.00
No. 152 Large Family size, tinned.....$17.00
Lyon's, Standard size.....₩ doz. $1.75
Wonder (S. S. & Co.).....₩ gro. $7.50

Bellows—

Blacksmith, Standard List.70@70&10%
C. E. Jennings & Co., Blacksmith..60&10%
C. E. Jennings & Co., Hand.....33⅓%

Blacksmiths—

Inch..	*2½*	*3*	*3½*	*4*	*5*	*6*
Each	*$3.50*	*3.75*	*4.25*	*4.80*	*5.35*	*6.15*

Extra Length:
Each..$4.00 4.55 5.10 5.60 6.40 7.50

Molders—

Inch..	*9*	*10*	*11*	*12*	*14*	*16*
Doz...	*$6.75*	*7.25*	*8.50*	*9.50*	*12.00*	*14.50*

Hand—

Inch...	*6*	*7*	*8*	*9*	*10*	*12*
Doz....	*$3.75*	*4.25*	*4.50*	*5.00*	*5.7*	*6.75*

Net Prices.

Bells— Cow—

Ordinary goods.....75&5@75&10%
High grade.....70@70&10%
Jersey.....75&10%
Texas Star.....50%

Door—

Abbe's Gong.....45%
Barton Gong.....55%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's....40@40&10%
Yankee Gong.....55%

Hand—

Hand Bells, Polished.....60&5@60&5%
White Metal .....55@55&10%
Nickel Plated.....50@50&10%
Swiss .....60@60&7½%
Silver Chime.....33⅓@33⅓&10%

Miscellaneous—

Farm Bells..... lb. 2@2½c
Steel Alloy Church and School..... 50&10&5@60%
National Bell Foundry Co.:
Superior Cast Steel Church and School Bells .....50&10&5@60%
Wilmot & Hobbs Mfg. Co., Gongs.....70%

Belting— Rubber—

Agricultural (Low Grade).75&10@30%
Common Standard.....75@75&10%
Standard.....70@70&10%
Extra.....60&10&5%
High Grade.....50&10@50&10&5%
Boston Belting Co.:
Seamless Stitched, Imperial.....45&5%
Boston .....50&5%
Niagara.....60&5%

Leather—

Extra Heavy, Short Lap..50&10@60%
Regular Short Lap 60&10@60&10&5%
Standard .....60&10&10@70&5%
Light Standard.....70@70&10%

Cotton—

Rossendale-Reddaway B. & H. Co.:
Sphinx Brand.....60&10%
Durable Brand..... 70%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters.....20%
Stoddard's Lightning Tire Upsetters.....40@50%

Bicycle Goods—

John S. Leng's Son's 1899 list:
Chain.....50%
Parts.....50%
Spokes.....50%
Tubes.....60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks— Tackle—

Common Wooden.....70@70&10%
Cleveland's Steel.....60&10@70%
Ford's Star Brand Self Lubricating.....60&10%
Hollow Steel, Ford's Pat. Star Brand.....50&10%
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron.....50&10%
See also *Machines, Hoisting.*

Boards Stove—

Zinc, Crystal, &c..... 40&10@..%

Bolts—

Carriage, Machine &c.—

Common, list Jan. 30, '95...65&10@..%
Norway Iron, $3.00, list Oct. 7, '85.. 80@80&5%
Phila. Eagle, $3.00 list May 24, '99.... 80@80&10%
Bolt Ends, list Jan. 30, '95.70&7½@..%
Machine, list Oct. 1, '99.....70&7½@..%
Machine with C. P., C. & T. Nuts. 65&12½%

NOTE—*The rapid advances in manufacturers' prices enable the jobbers to cut prices freely.*

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz...	*$0.26*	*.30*	*.39*	*.47*	*.65*

Cast Iron Spring Foot:

Inch	*6*	*8*	*10*
Per doz.....	*$1.00*	*1.35*	*1.75*

Cast Iron Chain, Flat, Japanned:

Inch.....	*6*	*8*	*10*
Per doz	*$0.75*	*1.05*	*1.30*

Cast Iron Shutter, Brass Knobs:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.57*	*.80*	*1.00*

Wrought Barrel Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz ..	*$0.44*	*.50*	*.61*	*.70*	*1.03*

Wrought Barrel .....70&10@75&5%
Wrought " Bronzed.40&5@50&10%
Wrought Flush, B. K..50&10&10@60&10%
Wrought Shutter...50&10&10@60&5%
Wrought Square Neck..... 50@50&10%
Wrought Sunk.....50@50&10%
Ives' Patent Door.....60%

Stove and Plow—

Plow .....60&10@..%
Stove.....77½%

Tire—

Common.....77½%
Norway Iron.....80@80&5%
American Screw Company:
Norway Phila., list Oct. 16, '84....82½%
Eagle Phila., list Oct. 16, '84.....85%
Bay State, list Dec. 28, '99.....77½%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84..82½%
Eagle Phila., list Oct. 16, '84.....85%
Eclipse, list Dec. 28, '99.....77½%
Port Chester Bolt & Nut Company
Empire, list Dec. 28, '99.....77½%
Keystone Phila. list Oct. '84.....85%
Norway Phila., list Oct. '84.....82½%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch.....	*1¼*	*1⅜*	*1¾*	₩
Per doz..	*$4.50*	*5.00*	*5.75*	*7 25*
Inch	*2¼*		*2¾*	
Per Doz	*$8 65*		*11.50*	

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.....25%

Boring Machines—*See Machines, Boring.*

Boxes Mitre—

C. E. Jennings & Co.....40%
Seavey's, per doz., $39.....40%

Braces—

NOTE.—*Most Braces are sold at net prices.*
Common Ball, American..$1.15@1 25
Barber's.....50&10&10@60&10%
Fray's Genuine Spofford s.....40%
Fray's No. 70 to 120, 81 to 139, 207 to 414.....60%
C. E. Jennings & Co.....50&10%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Patent..50%
P., S. & W. Co Peck's Patent.....60&10@65&5%

Brackets—

Wrought Steel.....75@5@75@10%
Bradley's Wire Shelf:
Full cases 80%
Broken cases.....75&10%
Griffin's Pressed Steel.....75%
Griffin's Folding Brackets.....70&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—

Wire Goods Co.....75%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—

Boss.....₩ gro. $48.00
Hoosier.....₩ gro. $36.00

Bull Rings—See *Rings, Bull.*

Butts— Brass—

Wrought list Sept., '96.....40@40@5%
Cast Brass, Tiebout's.....50%

Cast Iron—

Fast Joint, Broad.....50@50&10%
Fast Joint, Narrow.....50@50&10%
Loose Joint.....70@5@70&10%
Loose Pin.....70@5@70&10%
Mayer's Hinges.....70&5@70&10%
Parliament Butts.....70@5@70&10%

Wrought Steel—

Table and Back Flaps...60&10%
Narrow and Broad.....60&10%
Inside Blind.....60%
Loose Pin.....70&10%
Loose Pin, Ball and Steeple Tip .....70&10%
Japanned, Ball Tip Butts...60%
Bronzed Wrt. Nar. and Inside Blind Butts.....45%

Extra 25¢ & 25&5%

Cages, Bird—

Hendryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33⅓%
200, 300, 600 and 900 series.....40&10%
Hendryx Bronze:
700, 800 series.....40&10%
Hendryx Enameled.....40&10%

Calipers—See *Compasses.*

Calks. Toe and Heel—

Blunt, 1 prong.....per lb. 4 @4¼c
Sharp, 1 prong.....per lb. 4½@4¾c
Perkins' Blunt.....₩ lb 5 ¢
Perkins' Sharp.....₩ lb 5½¢

Can Openers—See *Openers, Can*

Cans, Milk—

	5	8	10 gal.	
Illinois Pattern.	$1 75	2.10	2.25	each.
Iowa Pattern...	....	2.40	2.60	each.
Buffalo Pattern.	....	2.40	2.50	each.
	20	30	40	qts.
New York Patt'rn	3.00	3.25	3.40	each.
Baltimore Patt'rn	2.50	2.85	3.10	each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$48.00	60.00	108 gro

Caps—Percussion—

Eley's E. B.	*60c*
G. D.	*per M 52@54c*
F. L.	*per M 57@59c*
G. E.	*per M 47@50c*
Musket.	*per M 57@60c*

Primers—

Berdan Primers, $1.00.....5%
B. L. Caps (Sturtevant Shells) $1.00.....5%
All other primers .....$1.10@$1.15

Carpet Stretchers—See *Stretchers, Carpet.*

Cartridges—

Blank Cartridges:
22 C. F., $5.50 ..... 10&5@10&10%
32 C. F., $7.00 ..... 10&5@10&10%
22 cal. Rim, $1.50 ..... 10&5@10&10%
32 cal. Rim, $2.75 ..... 10&5@10&10%
B. B. Caps, Con., Ball Swgd. $1.80@1.85
B. B. Caps, Round Ball ... $1.10@1.15
Central Fire ..... 25@25&5%
Pistol and Rifle ..... 15&5@15&10%
Primed Shells and Bullets ..... 15&5@15&10%
Rim Fire Sporting ..... 50@50&5%
Rim Fire, Military .... 15&5@15&10%

Casters—

Bed ..... 70@70&10%
Plate ..... 75@75&10%
Philadelphia ..... 75@75&10%
Boss ..... 70&10%
Boss Anti-Friction ..... 70&10%
Martin's Patent (Phoenix) 45%
Payson's Anti-Friction ..... 70&10&10&10%
Standard Ball Bearing 45%
Tucker's Patent, low list 80%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Coil—

NOTE.—*The following prices are f. o. b. Pittsburgh. Manufacturers in quoting usually add freight to destination.*

American Coil. Cask lots:

5-16	¼	*5-16*	⅜	*7-16*	½	*9-16*
7.15	*5.55*	*4.55*	*3.70*	*3.55*	*3.45*	*3.40*
⅝	¾	⅞ to 1	1⅛ to 1¼ inch.			
3.40	*3.35*	*3.35c. per lb.*	*3.60 per 100 lb.*			

Less than Cask lots add 25c.
German Coil, list July 24, '97. 60&10@10&10%

Halters and Ties—

Halter Chains ..... 50&10%
German Halter Chain, list July 24, '97 ..... 60&10&10%
Cow Ties 60%

Trace, Wagon, &c.—

Traces, Western Standard: 100 pair
6¼—6-3, Straight, with ring ... $30.00
6¼—6-2, Straight, with ring .. $31.00
6¼—8-2, Straight, with ring .. $35.00
6¼—10-2, Straight, with ring .. $38.00
Add 2¢ per pair for Hooks.
Twist Traces 2¢ per pair higher than Straight Link.
Trace, Wagon and Fancy Chains .. 50&10@50&10&5%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron ..... 60@60&10%
Brass ..... 60@60&10%
Safety Chain ..... 70&5@70&10%
Gal. Pump Chain ..... lb. 4½@4¾c
Covert Mfg. Co.:
Breast ..... 35&2%
Halter ..... 35&2%
Heel ..... 35&2%
Rein ..... 35&2%
Stallion ..... 35&2%
Covert Sad. Works:
Breast 70%
Halter 70%
Hold Back 70%
Rein 70%
Oneida Community:
Am. Coil and Halters ..... 50&10&5@60%
Am. Cow Ties ..... 35&5@40&5%
Eureka Coil and Halter ..... 60@60&5%
Niagara Coil and Halter ..... 60@60&5%
Niagara Cow Ties ..... 45&5@45&10&5%
Wire Goods Co.:
Dog Chain ..... 60&10%
Universal Dbl-Jointed Chain 50%

Chalk—(From Jobbers.)

Carpenters' Blue ..... gro. 42@45c
Carpenters', Red ..... gro. 57@60c
Carpenters', White ..... gro. 33@35c
See also Crayons.

Chalk Lines—See *Lines.*

Checks, Door—

Bardsley's ..... 40&10%
Columbia ..... 50&10%
Eclipse ..... 60@60&10%

Chests Tool—

American Tool Chest Co.:
Boys' Chests, with Tools 35%
Youths' Chests, with Tools 40%
Gentlemens' Chests, with Tools 30%
Farmers', Carpenters', etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty 50%
C. E. Jennings & Co.'s Machinists' Tool Chests 30%

Chisels—

Socket Framing and Firmer

Standard List ..... 70&5@70&10%
Buck Bros 30%
Charles Buck 30%
C. E. Jennings & Co. Socket Firmer No. 10 ..... 60&10%
C. E. Jennings & Co. Socket Framing No. 15 ..... 60&10%
Swan's ..... 70&5%
L. & I. J. White ..... 30@30&5%

Tanged—

Tanged Firmers ..... 40&5@40&10%
Buck Bros 30%
Charles Buck 30%
C. E. Jennings & Co. Nos. 191, 161 ..... 35%
L. & I. J. White, Tanged ..... 25&5%

Cold—

Cold Chisels, good quality .. lb. 13@15c
Cold Chisels, fair quality .. lb. 11@12c
Cold Chisels, ordinary ..... lb. 8@9c

Chucks—

Beach Pat., each $8.00 ..... 30%
Massey's Planer and Milling ..... 15@20%
Skinner Patent Chucks:
Combination Lathe Chucks 40%
Drill Chucks, Patent and Standard 30%
Drill Chucks, New Model 2½
Independent Lathe Chucks 40%
Improved Planer Chucks 35%
Universal Lathe Chucks 40%
Face Plate Jaws 40%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination 40%
Cear Drill 30%
Geared Scroll 30%
Independent 40%
Union Drill 30%
Universal 40%
Face Plate Jaws 35%

Clamps—

Adjustable, Hammers' ..... 20@20&5%
Cabinet, Sargent's ..... 50&10%
Carriage Makers', P., S. & W. Co. ..... 40&10%
Carriage Makers' Sargent's ..... 50&10%
Beaty, Parallel ..... 33⅓&10%
Lineman s, Udica Drop Forge & Tool Co 40%
Saw Clamps, see *Vises, Saw Filers'.*

Cleaners Sidewalk—

Star Socket, All Steel ..... ₱ doz. $4.00 net
Star Shank, All Steel ..... ₱ doz. $3.75 net
W. & C. Snaur, All steel, 7½ in. ₱ doz., $3.05; 8 in., $3.10; 8½ in., $3.25.

Cleavers, Butchers'—

Foster Bros 30%
New Haven Edge Tool Co.'s 40%
Fayette R. Plumb ..... 33⅓&10%
P., S & W ..... 50&5&5%
L. & I. J. White 25%

Clippers—

Chicago Flexible Shaft Company
Handy Toilet ..... ₱ doz. $7.20
Mascotte Toilet ..... ₱ doz. $3.40
Monitor Toilet ..... ₱ doz. $9.00
Stewart's Patent ..... ₱ doz. $10.00

Clips Axle—

Eagle and Superior ¼ and 5-16 inch ..... 70&10%
Norway, ½ and 5-16 inch .. 70@70&10%

Cloth and Netting, Wire—See *Wire, &c.*

Cocks, Brass—

Hardware list (Globe, Kerosene, Racking, &c.) ..... 65&10%

Coffee Mills—See *Mills, Coffee.*

Collars Dog—

Brass, Pope & Stevens' list 40%
Embossed, Gilt, Pope & Stevens' list ..... 30&10%
Leather Pope & Stevens' list 40%

Compasses Dividers, &c.

Ordinary Goods ..... 70&10@75%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Call's Patent Inside 55%
Calipers, Double 65%
Calipers, Inside or Outside 65%
Calipers, Wing 60%
Compasses 50%
J. Stevens A. & T. Co ..... 25&10%

Compressors Corn Shock—

J. B. Hughes' ₱ doz $2.50

Conductor Pipe, Galva.—

L. C. L. to Dealers:

Territory.	*Not nested.*	*Nested.*
Eastern	70&2½%	70&5%
Central	65&10%	70%
Southern ..	65%	65&2½%
S. Western.	60&12½%	60&15%

Terms, 2% for cash.
Jobbers receive extra 12½&2½ *on carloads loose, and extra* 12½ *on carloads crated.*

See also *Eave Troughs.*

Coolers, Water—

Nos.	2	3	4	6
Labrador	$11.50	$14.00	$17.50	$20.00

8 gal.
$30.00

Nos	3	4	6	8
Iceland	$23.00	$25.00	$30.00	$37.50

10 14 gal.
$57.00 $72.00

Coopers' Tools—

See *Tools, Coopers'.*

Cord—Sash—

Braided, Drab ..... lb. 25c
Braided, White, Common, lb 17½@18c
Cable Laid Italian .. lb. A, 18c; B, 16c
Common India ..... lb 9 @9¼c
Cotton Sash Cord, Twisted .... 12@16c
Patent Russia ..... lb. 12½@13c
Cable Laid Pussia ..... lb. 13½@14c
India Hemp, Braided ..... lb 14@15c
India Hemp, Twisted ..... lb. 10@12c
Patent India, Twisted ..... lb. 10@12c
Pearl Braided, cotton ..... ₱ b 17@18¢
Massachusetts, White ..... ₱ b 21½¢
Massachusetts, D ab ..... ₱ b 20½¢
Eddystone Braided Cotton ..... ₱ b 19¢
Harmony Cable Laid Italian ..... ₱ b 18¢
Ossawan Mills:
Crown, Solid Braided White ... ₱ b 22¢
Braided, Giant, White ..... ₱ b 20¢
Peerless:
Cable Laid Italian ..... 16¢
Cable Laid Russian ..... 14¢
Cable Laid India ..... 12¢
Braided India ..... 18¢
Phœnix, White ..... 19¢
Samson:
Braided, Drab Cotton ..... ₱ b 22½¢
Braided, Italian Hemp ..... ₱ b 22½¢
Braided, Linen ..... ₱ b 40¢
Braided, White Cotton, Spot ₱ b 28½¢
Silver Lake:
A quality, Drab, 40¢ 15%
A quality, White, 35¢ 15%
B quality, Drab, 35¢ 15%
B quality, White, 30¢ 15%
Italian Hemp, 40¢ 15%
Linen, 57½¢ 15%

Wire, Picture—

Braided or Twisted ..... 85@85&10%
Note.—There is a good deal of confusion in lists, some using old list and others the new list.

Corn Knives and Cutters—See *Knives, Corn.*

Corn Planters—

See *Planters, Corn—*

Crackers, Nut—

Little Giant ..... ₱ gr. $24.00

Cradles—

Grain 50%

Crayons—

White Round Crayons, gross .. 5½@6c
Cases, 100 gro., $4.50, at factory.
D. M. Steward Mfg. Co.
Metal Workers' Crayons gr. $2.50
Soapstone Pencils, round, flat or square ..... gr. $1.50
Rolling Mill Crayons ..... gr. $2.50
Railroad Crayons (composition) gr. $2.00
Case lots 30%
See also Chalk.

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—

Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light ..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden ..... ₱ doz. $10.00

Cutlery Table—

International Silver Company:
No. 12 Medium Knives, 1847 .. ₱ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor ..... ₱ doz. $4.00
Wm. Rogers & Son ..... ₱ doz. $4.00
Simeon L. & Geo. H. Rogers Company:
12 dwt. Medium Knives ..... ₱ doz. $3.00
No. 77 Medium Knives ..... ₱ doz. $2.50

Cutters—Glass—

H. H. Mayhew Co 40%
Smith & Hemenway Co 50%

Meat—

Hale's..Nos. 11 & 111 13 & 113 15 & 115
Per doz .. $10.80 13 20 18.00
American 30%

Nos	1	2	3	4	5
Each	$5	$7	$10	$25	$50	$60

Connecticut 50%

No	20	40	60	8	10	12
Each	$1.75	2.00	2.25	5.00	8.00	4.00

Enterprise ..... 25@25&7½%

Nos	5	10	12	22	32
Each	$2	$3	$2.50	$4	$6

Dixon's, ₱ doz ..... 30&10@10%

Nos	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Home No. 1, ₱ doz. $23.75 ..... 50&10%
Little Giant, ₱ doz ..... 33⅓&3@40%

Nos	305	310	312	320	322
	$35.00	$48.00	$44.00	$71.00	$68.00

Sterling ..... 33⅓&5%

Nos	1	2
Each	$3.00	$2.50

New Triumph No. 605, ₱ doz. 24.00 ..... 30&10@40%
Woodruff's, ₱ doz ..... 30&10@40%

Nos	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c 40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9 .. 55%
Kraut Cutters 36 x 12, 40 x 12 ..... 40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife ₱ gr. ..... $18@$20
Slaw Cutters, 2 Knife, ₱ gr. ..... $22@$36

Tobacco—

All Iron, Cheap ..... *doz. $4.25@$4.50*
Enterprise ..... 25@30%
National, ₱ doz. $21.00 ..... 40%
Sargent's, ₱ doz., No. 2 ..... 45&10%
Sargent's No 2 and 21 ..... 60&10%

Washer—

Appleton's, ₱ doz. $16.00 .... 50&10&10%
Bonney's 40%

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger ... per doz., $9.00
Iwan's Improved Post Hole Auger 40%
Iwan's Perfection Post Hole Digger ..... ₱ doz. $9.00
Kohler's Universal ..... ₱ doz. $14.00
Kohler's Little Giant ..... ₱ doz. $14.00
Kohler's Hercules ..... ₱ doz. $12.00
Kohler's Invincible ..... ₱ doz. $10 00
Kohler's Rival ..... ₱ doz. $9.00
Kohler's Pioneer ..... ₱ doz. $9.00
Never-Break Post Hole Diggers, ₱ doz. $24.00 ..... 60%
Samson, ₱ doz. $34.00 ..... 25%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—

See *Checks, Door.*

Door Springs—

See *Springs, Door.*

Doors, Screen—

Porter's Plain, No. 6 ..... ₱ doz. $6 50
Porter's Ornamental, No. 70 .. ₱ doz. $10.00

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—

See *Knives, Drawing.*

Drills and Drill Stocks—

Common Blacksmiths' Drill..each $1.50@$1.75
Blacksmiths' Self-feeding ..... *each $2.75@$4.00*
Breast, Millers Falls, each $3.00 .. 15&10%
Breast, P., S. & W ..... 40@40&5%
Goodell Automatic Drills .. 40&5@40&10%
Johnson's Automatic Drills Nos. 2 and 3 ..... 16⅔%
Johnson's Drill Points ..... 25&10%
Ratchet, Curtis & Curtis 25%
Ratchet, Parker's 40%
Ratchet, Weston's ..... 20@25%
Ratchet, Whitney's, P. S. & W ..... 40&10%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00 ..... 33⅓%

Twist Drills—

Standard List ..... 60&5@65&5%

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—

See *Pans, Dripping.*

Drivers, Screw—

Screw Driver Bits ... *per doz. 45@70c*
Balsey's Screw Holder and Driver, ₱ doz. 2-inch, $6; 4-in., $7.50 6-in., $9.. 40%
Buck Bros 30%
Buck Bros' Screw Driver Bits 30%
Champion ..... 40&10%
Douglass Mfg. Co ..... 20@20&10%
Fray's Hol. H'dle Sets, No. 8, $12.00 50%
Gay's Double Action Ratchet 25%
Goodell's Automatic ..... 50&10&10@50&10&10&5%
Mayhew's Black Handle 50%
Mayhew's Monarch ..... 40&10%
New England Specialty Co ..... 50&10%
Sargent & Co.'s:
Nos. 1, 50, 55 and 60 ..... 50&10&10%
Nos. 20 and 40 ..... 65⅓&10%
Smith & Hemenway Co ..... 40&5%
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles ..... 60&10%
No. 86 ..... 70&10%
Swan's:
Nos. 65 to 68 ..... 50%
No. 40 ..... 40&10%
Nos. 25, 35 and 45 ..... 20&10&10%

Eave Trough Galvanized

Territory.	*L. C. L.*	
Eastern	75&10%	Carloads extra 12½%
Central	75&7½%	
Southern	70&12½%	
S. Western	70&10%	

Terms, 2% for cash.
See also *Conductor Pipe and Elbows.*

Egg Beaters—See *Beaters, Egg*

Egg Openers—

See *Openers, Egg.*

Elbows and Shoes—

Factory shipments ..... 60@60&10%
Perfect Elbows (S. S. & Co.) 40%

Emery, Turkish—

4 to 4½ 5 to 150 Flour

Kegs	lb. 5c	5½c	5¾c
¼ *Kegs*	lb. 5½c	5¾c	5¾c
Kegs	lb 5c	6c	

10 lb cans, 10 in case 6½c 7c 6c
10-lb. cans less than 10 10c 10c 8c
NOTE.—*In lots 1 to 3 tons a discount of 10% is given.*

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—

See *Pins, Escutcheon.*

Extractors, Lemon Juice—See *Squeezers, Lemon.*

Fasteners, Blind—

Zimmerman's ..... 50&10%

Faucets—

Cork Lined ..... 70&5@70&10&5%
Metallic Key, Leather Lined ..... 70@70&10%
Red Cedar ..... 60@50&5%
B. & L. B. Co.:
Lockport, Metal Plug, reduced list 60&5%
Star ..... 60@60&5%
Star, Metal Plug new list ... 40@40&5%
West's Lock, Open and Shut Key 50&10%
John Sommer's Peerless Tin Key 40%
John Sommer's Boss Tin Key 50%
John Sommer's Victor Metal Key .. 50&10%
John Sommer's Duplex Metal Key 60%
John Sommer's Diamond Lock 40%
John Sommer's I. X. L. Cork Lined .. 50%
John Sommer's Reliable Cork Lined ..... 50&10%
John Sommer's Common Cork Lined .. 70%
John Sommer's Chicago Cork Lined .. 60%
John Sommer's O. K. Cork Lined 50%
John Sommer's Perfection Cedar 40%
McKenna, Brass:
Burglar Proof, N. P 35%
Improved, ¾ and ⅞ inch 35%

Self Measuring:

Enterprise, ₱ doz. $30.00 ..... 40&10%
Lane's, ₱ doz. $36.00 ..... 40&10%
National Measuring, ₱ doz. $66.00 .... 40%

Felloe Plates—

See *Plates, Felloe.*

Files—Domestic—

List revised Nov. 1, 1899.

Best Brands	70@75&5%				
Good Brands	75&10@75&10&10%				
Fair Brands	80@80&10%				
Second Quality	80&10@80&10%				

Imported—

Stubs' Tapers, Stubs' list, July 24, '97 ..... 35%

Fixtures, Grindstone—

Net Prices:

Inch	15	17	19	21	24
Per doz.	*$2.60*	*2.75*	*3.00*	*3 50*	*4.40*

Stowell's Giant Grind stone Hanger ..... ₱ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy ..... 50&10&10%
Stowell's Grindstone Fixtures Light ..... 60&10%
P., S. & W. Co ..... 50@50&5%
Reading Hardware Co ..... 30&20&10%
Sargent's ..... 60&10&10%

Fodder Squeezers—

See *Compressors.*

Forks—

Sept. 1, 1900, list.
Grain or Barley Forks, 18 to 20 inches ..... 70&6%
Hay, 2 tine 65%
Hay, 3 tine 66⅔%
Hay, 4 tine, Header and Barley Forks, 13 to 16 inches 66⅔%
Manure, 4 tine 70%
Manure, 5 and 6 tine 70%
Spading ..... 70&5%
Iowa Dig-Eze Potato 65%
Victor, Hay 66⅔%
Victor, Manure 70%
Victor, Header ..... 60&30%
Champion, Hay 66⅔%
Champion, Manure 70%
Columbia, Hay ..... 66⅔&5%
Columbia, Manure 70%
Columbia, Spading 70%
Hawkeye Wood Barley 4 tine ₱ doz. $5.00; 6 tine, $6.00.
W. & C. Potato Digger 65%
Acme Hay ..... 60&10&7½%
Acme Manure, 4 tine ..... 60&20&10%
Acme Manure, 6 tine ..... 60&20&10%
Dakota Header ..... 65&15&5%
Jackson Steel Barley ..... 65&15&5%
Kansas Header 60%
W. & C. Favorite Wood Barley 4 tine, ₱ doz., $5.00; 6 tine, $6.00
Plated.—See *Spoons.*

Frames—Saw—

Red, Polished and Varnished..doz. $1.15@$1.35
White ..... *doz. 75@80c*

Screens and Frames—

See *Screens.*

Freezers, Ice Cream—

Qts...	2	3	4	6	8	10
Best	*$1.45*	*1.65*	*1.95*	*2.40*	*3.20*	*4.00*
Good	*$1 25*	*1.40*	*1.70*	*2.15*	*2.75*	*3.75*
Fair	*$1.00*	*1.10*	*1 30*	*1.75*	*2.30*	*2.90*

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—Per 1000 Feet.

Hemp Fuse $2.60
Cotton Fuse 2.90
Single Taped Fuse 3.25
Double Taped Fuse 4.20
Triple Taped Fuse 5.00
10 and 25%

Gates, Molasses and Oil—
Stebbins' ..... 80&10@80&10&10%

Gauges—
Marking, Mortise, &c. ..... *55&10@55&10&10%*
Barrett's Comb. Roller Gauge ..... ₩ doz. $6.75@7.25
Stanley R. & L. Co.'s Butt & Babbet Gauge ..... 20&10%
Wire, Brown & Sharpe's 25%
Wire, Morse's 25%
Wire, P., S. & W. Co. ..... 30@30&10%

Gimlets—
Nail, Metal, Assorted, gro. $1.40@1.75
Spike, Metal, Assorted gro. $3.00@3.50
Nail, Wood Handled, Assorted, gro. $4.00@4.25
Spike, Wood Handled, Assorted gro. $5.00@5.25

Glass, American Window
Jobbers' List, Jan. 21, 1901.
Less than Carloads ..... *80&10%*
Carloads ..... *85&5%*
1000 Boxes *87%*

Glue—Liquid, Fish—
List A, Bottles or Cans, with Brush. *37½@50%*
List B, Cans (½ pts., pts., qts.) ..... *33⅓@33⅓&5%*
List C, Cans (½ gal., gal.) ..... *25@45%*
International Glue Co. (Martin's) ..... 40&10@50%

Glue Pots—See *Pots, Glue.*

Grease, Axle—
Common Grade ..... *gro. $5.00@6.00*
Dixon's Everlasting....10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs.. ₩ doz. 1 lb $1.20; 2 lb $2.00
Snow Flake: 1 qt. cans..per doz. $2.00; 2 qt., $3.20; 1 gal. cans per doz. $6.00; 5 gal. $16.00; 5 gal. $24.00 } 33⅓&5

Grindstones—
Bicycle Grindstones, each ..... $2.50@3.00
Pike Mfg. Co:
Improved Family Grindstones, per inch, per doz. $2.00
Pike Mowe Knife and Tool Grinder, each ..... $6.00 } 33⅓&5
Velox Ball Bearing, mounted, Angle Iron Frames ..... each, $3.25

Guards, Snow—
Cleveland Wire Spring Co.:
Galv. Steel ₩ 1000 ..... $9.00
Copper ₩ 1000 ..... $18.00

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—
gro.
Peg Patent, Leather Top..$4.90@5.25
Peg Patent, Plain Top....$3.50@3.75
Sewing, Brass Ferrule....$1.50@1.60
Saddlers', Brass Ferrule..$1.35@1.45
Peg, Common ..... $1.25@1.35
Brad, Common ..... $1.50@1.75

Halters and Ties—
Covert Mfg. Co.:
Web ..... 45&2%
Jute Rope ..... 45&2%
Sisal Rope ..... 30&2%
Covert's Saddlery Works:
Web and Leather Halters 70%
Jute and Manila Rope Halters 70%
Sisal Rope Halters ..... 60&20%
Jute, Manila and Cotton Rope Ties..70%
Sisal Rope Ties ..... 60&20%

Hammers—
Handled Hammers—
Heller's Machinists' ..... 50@50&5%
Heller's Farriers ..... 50@50&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ..... 40&10%
Peck, Stow & Wilcox ..... 50&10%
Fayette R. Plumb:
Plumb, A. E. Nail ..... 40&10&7½%
Engineers' and B. S. Hand..d0&10&2½%
Machinists' Hammers 60%
Riveting and Tinners' ..... 40&10&7½%
Sargent's C. S. New List 45%

Heavy Hammers and Sledges—
1 lb. and under...lb. 45c
2 to 5 lb. ..... lb. 36c } 30&10@30
Over 5 lb. ..... lb. 30c } &10&5%
Wilkinson's Smiths' ..... *9½c@10c lb.*

Handcuffs and Leg Irons
See *Police Goods.*

Handles—
Agricultural Tool Handles—
Axe, Pick, &c ..... *60@60&10%*
Hoe Rake, Fork, &c. ..... *60@60&10%*
Shovel, &c., Wood D Handle..50@50&5%
Cross-Cut Saw Handles—
Atkins' ..... 40&5%
Champion ..... 45@45&10%
Disston's 50%
Mechanics' Tool Handles—
Auger, assorted ..... gro. $2.30@2.50
Brad Awl ..... gro. $1.25@1.50
Chisel Handles:
Apple Tanged Firmer, gro. ass'd, $2.25@$2.35; large, $2.50@$2.60.
Hickory Tanged Firmer, gro. ass'd. $1.75@$2.20; large, $3.50@$3.70.
Apple Socket Firmer, gro. ass'd, $1.70@$1.85; large, $2.00@$2.25
Hickory Socket Firmer, gro ass'd. $1.60@$1.75; large, $1.75@$2.00
Hickory Socket Framing, gro. ass'd. $2.50@$2.75; large, $2.65@$2.85
File, assorted ..... gro. $1.60@$1.15
Hammer, Hatchet, Axe, &c 60%
Hand Saw, Varnished, doz. 70@75c
Not Varnished.. ..... 55@60c
Plane Handles:
Jack, doz. 35c; Jack Bolted..55@60c
Fore, doz. 35@38c; Fore, Bolted.. 70@75c

Hangers—
Barn Door, New Pattern, Round Groove, Regular:

Inch	3	4	5	6	8
Doz	$0.85	1.20	1.50	1.90	2.30

Barn Door, New England Pattern, Check Back, Regular:

Inch	3	4	5	6
Doz	$1.30	1.75	2.50	3.00

Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin 25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door 50%
Elevator 40%
Railroad 55%
Cronk Hanger Co.:
Loose Axle 60%
Roller Bearing ..... 60&10%
Lane Bros.:
Parlor, Ball Bearing $4.00
Parlor, Standard $3.25
Parlor, New Model $2.75
Parlor New Champion $2.25
Barn Door, Standard ..... 60&10%
Covered ..... 50&10&10&5%
Special ..... 60&10%
Lawrence Bros.:
Advance 60%
Cleveland 70%
Crown 60%
New York 60%
Peerless ..... 60&10%
Sterling 60%
McKinney Mfg. Co.:
No. 1, Special, $15 ..... 60&10%
No. 2, Standard, $18 ..... 60&10%
Stowell Mfg. and Foundry Co..
Acme Parlor Ball Bearing 40%
Atlas 60%
Badger Barn Door 50%
Baggage Car Door 50%
Climax Anti-Friction 50%
Elevator 40%
Express 50%
Interstate 50%
Lundy Parlor Door 50%
Magic 50%
Matchless 60%
Nansen ..... 60&10%
Railroad 50%
Street Car Door 50%
Steel, Nos. 300, 404, 500 ..... 40&15%
Stowell Parlor Door 50%
Wild West, Nos. 303, 404, 500 ..... 5%
Zenith for Wood Track 50%
Taylor & Boggis Foundry Co.:
Ridder's ..... 50&15&10&5%
Columbian Hdw. Co.:
American Trackless ..... 33⅓&10%
Wilcox Mfg. Co.:
Bike Roller Bearing ..... 60&10%
C. J. Roller Bearing ..... 60&10%
Cycle Ball Bearing 50%
Dwarf Ball Bearing 40%
Ives, Wood Track ..... 60&10%
L. T. Roller Bearing ..... 60&10&5%
New Era Roller Bearing ..... 50&10%
O. K. Roller Bearing ..... 60&10&5%
Prindle, Wood Track 60%
Richards' Wood Track 60%
Richards' Steel Track ..... 50&10%
Spencer Roller Bearing ..... 60&10%
Tandem, Nos. 1 and 2 ..... 60%
Underwriters' Roller Bearing 40%
Wilcox Auditorium Ball Bearing 20%
Wilcox Barn Trolley No. 123 ..... 40%
Wilcox Fire Trolley, Roller Bearing 30%
Wilcox Le Roy Noiseless Ball Bearing 40%
Wilcox New Century ..... 50&10&10%
Wilcox Trolley Ball Bearing 40%

Extra 5@10% often given.

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—
McKinney's Perfect Hasp ₩ doz. 50%
Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—
Best Brands ..... *50@50&10%*
Cheaper Brands ..... *60@60&10%*
Note.—Net prices often made.

Hay and Straw Knives—See *Knives.*

Hinges—
Blind and Shutter Hinges—
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	1	3	5
Doz. pair	$0.75	1.45	2.90

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	1	1½	2	2½
Doz. pair	$0.60	.55	.52	.45

Mortise Reversible Shutter, (Buffalo, &c.)

No.	1	1½	2
Doz. pair	$0.65	.60	.55

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50 ..... 10%
Parker ..... 70@75%
Reading's Gravity ..... 75&10%
Sargent's, Nos. 1, 3, 5, 11 & 13 ..... 70&10@70&20%
Stanley's Steel Gravity Blind Hinges, ₩ doz. sets, without screws, $0.80; with screws, $1.15.
Wrightsville H'dware Co.:
O. S, Lull & Porter ..... 80&2½%
Acme, Lull & Porter ..... 75&10%
Queen City Reversible ..... 75&10%
Stenger's Positive Locking, Nos. 1 & 3 ..... 70&10&5%
Shepard's Noiseless, Nos. 60, 65, 55 ..... 70&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5 ..... 75&7½%
1868, Old Pat'n. Nos. 1, 3 & 5 ..... 75&7½%
Tip Pat'n, Nos. 1, 3 & 5 ..... 75&7½%
Buffalo Gravity Locking, Nos. 1, 3 & 5 ..... 75&7½%
Shepard's Double Locking, Nos. 20 & 25 ..... 70&10%
Champion Gravity Locking, No. 75 ..... 75&7½%
Steamboat Gravity Locking, No. 10 ..... 5&7½%
Pioneer, Nos. 060, 45 & 5½ ..... 75&7½%
Empire, Nos. 101 & 103 ..... 70&7½%
W. H. Co.'s Mortise Gravity Locking, No. 2 ..... 60&10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	1	2	3
Hinges with Latches	$1.90	2.50	3.35
Hinges only	$1.30	1.90	2.90
Latches only	.65	.65	.95

New England:
With Latch ..... doz .... @$1.55
Without Latch .... doz. .... @$1.25
Reversible Self-Closing:
With Latch ..... doz. .... @$1.80
Without Latch .... doz. .... @$1.45
Western:
With Latch ..... doz. $1.40@1.75
Without Latch .... doz. $0.95@1.30
Wrightsville H'dware Co.:
Shepard's or Clark's, Nos. 1 & 2..65&2½%
Shepard's or Clark's, No. 3 ..... 55&5%

Extra 10% often given on most of these Hinges.

Spring Hinges—
Holdback, Cast Iron..gro. $7.00@7.25
Non-Holdback, Cast Iron ..... gro. $5.50@5.75
J. Bardsley 15%
Bardsley's Patent Checking 15%
Bommer Bros.:
Bommer Ball Bearing Floor Hinges 40%
Bommer Spring Hinges 40%
Chicago Spring Butt Co.:
Chicago 25%
Floor Hinge 50%
Garden City Engine House 25%
Keene's Saloon Door 25%
Triple End 50%
Hoffman Hinge & Foundry Co.:
No. 70 & 80 Holdback Detachable $8.50
Lawson Mfg. Co.:
Marchiss 35%
Matchless Pivot 45%
Payson Mfg. Co.:
Oblique ..... 50&10%
Stover Mfg. Co.:
Ideal, No. 16, Detachable, ₩ gr. $12.50
Ideal, No. 4 ..... ₩ gr. $9.00
New Idea No. 1 ..... ₩ gr. $9.00
New Idea, Double Acting 45%
Columbian Hdw. Co.:
Acme, Wrt. Steel 30%
Acme, Brass 20%
American 30%
Columbia, No. 14 ..... ₩ gr. $9.00
Columbia, No. 18 ..... ₩ gr. $25.00
Columbia, Adjustable 30%
Gem, new list 25%
Clover Leaf ..... ₩ gr. $12.50
Oxford new list 25%

Wrought Iron Hinges—
Strap and T Hinges, &c., list Mar. 15, 1901:
Light Strap Hinges...75%
Heavy Strap Hinges..80%
Light T Hinges..... 70%
Heavy T Hinges..... 66⅔%
Extra Heavy T Hinges..... 75&10% } *Extra 20@25%*
Hinge Hasps 60%
Cor. Heavy Strap 80%
Cor. Ex. Heavy T...75&10%
Screw Hook and Strap. 6 to 12 in.... lb. 3 c; 14 to 20 in.... lb. 2¾c; 22 to 36 in.... lb. 2½c
Screw Hook and Eye:
¾ to 1 inch ..... lb. 5 c
⅝-inch ..... lb. 6 c
½-inch ..... lb. 7 c

Miscellaneous—
Hoffman's Steel Spring Butt Hinges ..... 40&10%
Hoffman's Offset Refrigerator Hinges ..... 40&10%

Hods, Coal—

	15	16	17	18 inch.
Galv. Open	$2 10	2.55	2.80	3.15 ₩ doz.
Jap. Open	$1.60	1.°2	2.10	2.40 ₩ doz.
Galv. Funnel	$2.65	3.05	3.32	3.65 ₩ doz.
Jap. Funnel	$2.10	2 45	2.65	2.90 ₩ doz.

Hoes—Eye—
Scovil and Oval Pattern ..... 60&5@60&10&5%
Grub, list Feb. 23, 1899. 70&5@70&10%
D. & H. Scovil 35%

Handled—
Sept. 1, 1900, List:
Field and Garden ..... 75&2%
Ladies', Boys', Toy and Onion.... 70&10&10%
Street and Mortar ..... 75&2½&2%
Cotton ..... 70&10&10&5&2%
Planters' ..... 70&30%
Weeding 75%
Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.
Ft. Madison Crucible Garden Hoe ..... 75&3%
Ft. Madison Crescent Cultivator Hoe, per doz. ..... 75&10&2%
Ft. Madison Mattock Hoes:
Regular Weight ..... ₩ doz. $4.50
Junior Size ..... ₩ doz. $4.00
Ft. Madison Sprouting Hoe, ₩ doz. $4.80
Ft. Madison Dixie Tobacco Hoe..75&20%
Kretsinger's Cut Easy, per doz....75&2%
Warren Hoe 60%
W. & C. Ivanhoe ..... 75&2%
B. B. Cultivator Hoe ..... 75&10&2%
Acme Weeding ..... 75&10&2%
W. & C. Lightning Shuffle Hoe, ₩ doz. $4.85

Hog Rings and Ringers—See *Rings and Ringers.*

Hoisting Apparatus—See *Machines, Hoisting.*

Hollow Ware—See *Ware, Hollow.*

Holders—Bit—
Angular, ₩ doz. $24.00 ..... 45&10%
Door—
Empire 50%

File and Tool—
C. E. Jennings & Co. Model Tool Holders 33⅓%
Nicholson File Holders and File Handles 33⅓%

Hooks—Cast Iron—
Bird Cage, Reading } 50&10@60%
Bird Cage, Sargent's List } 50&10@60%
Ceiling, Sargent's List ..... 40&10%
Clothes Line, Hoffman's ..... 40&10%
Clothes Line, Sargent's List 50&10&5&10%
Clothes Line, Stowell's 70%
Clothes Line, Reading List 65&10@65&10&10%
Coat and Hat, Stowell's 70%
Coat and Hat, Reading ..... 70@75%
Coat and Hat, Sargent's List..... 45&10%
Coat and Hat, Wrightsville ..... 65&10%
Harness, Reading List ..... 70&10@75%

Wire—
Belt 80%
Wire C. & H. Hooks..60&10@60&10&5%
Atlas, Coat and Hat:
Single Cases 45%
10 Case Lots ..... 45&10%
Czar Harness ..... 50&10&5%
Wire Coat and Hat:
Acme 60%
B. B. 60%
V Brace, Chief and Czar 60%
Gem 60%
Bright Wire Goods—See *Wire.*

Wrought Iron—
Box, 6 in., per doz. $1.50; 8 in., $1.75; 10 in., $2.00.
Cotton ..... doz. $1.05@1.25
Wrought Staples, Hooks, &c.—See *Wrought Goods.*

Miscellaneous—
Bush, Light, doz. $5.50; Medium, $6.00; Heavy, $6.50
Grass ..... Nos. 1 2 3 4
Best $1.50 1.75 2.00
Common $1.30 1.50 1.40 1.60
Potato and Manure 70%
Whiffletree ..... lb. 4¾c
Hooks and Eyes:
Brass ..... 60&10&10@70%
Malleable Iron ..... 70&5@70&10%
Covert Saddlery Works' Self Locking Gate and Door Hook 60%
Crown Picture ..... 50&10%
Bench Hooks—See *Bench Stops.*
Corn Hooks—See *Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—See *Shoes, Horse.*

Hose Rubber—
Garden Hose, ¾-inch:
Competition ..... ft. 4¼@ 4¾c
3-ply Standard ..... ft. 5 @ 6 c
4-ply Standard ..... ft. 8 @ 9 c
3-ply extra ..... ft. 9 @10 c
4-ply extra ..... ft. 11 @12 c
Cotton Garden, ¾-in., coupled:
Low Grade ..... ft. 6 @7 c
Fair quality ..... ft. 8 @9 c

Irons—Sad—
From 4 to 10 ..... lb. 3@3½c
B. B. Sad Irons ..... lb. 3½@4c
Chinese Laundry ..... lb. 5@5½c
Chinese Sad ..... lb. 3½@3½c
Mrs. Potts', per set:

Nos.	50	55	60	65
	67@72c	64@69c	77@82c	74@79c

New England Pressing..lb.. 3½@3¾c

Soldering—
Soldering Coppers, 1 & 1¼ lb, 21@23c.; 2 lb., 19@21c
Covert Mfg. Co. ..... 20&2%
Smith & Hemenway Co's Sets 70%

Pinking—
Pinking Irons ..... doz. 50@60c

Jack Screws—See *Screws.*

Jacks, Wagon—
Covert Mfg. Co., Steel ..... 45&2%
Covert's Saddlery Works':
Daisy ..... 60&10%
Victor ..... 60&10%
Lockport ..... 40@40&10%
Lane's Steel ..... 33⅓&5%

Kettles—
Brass, Spun, Plain ..... 20@25%
Enameled and Cast Iron—See *Ware, Hollow.*

Knife Sharpeners—See *Sharpeners, Knife.*

Knives—
Butcher, Shoe, &c.—
Foster Bros.' Butcher, &c. 30%
Smith & Hemenway Co. ..... 40&10%
Hay and Straw—See *Hay Knives.*

Corn—
Ft. Madison Cut-Easy, ₩ doz. $3.25
Withington Acme, ₩ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—
Standard List ..... 70&5@70&10%
Adjustable Handle 25%
Bradley's 35%
Cantelo's Folding ..... 50@50&5%
C. E. Jennings & Co. Nos. 45, 46..40&10%
Jennings & Griffin ..... 66⅔&5%
Swan's ..... 70&10&2½%
Watrous 25%
L. & I. J. White ..... 20&5@25%

Hay and Straw—
Lightning Pat n...per doz $6.25@6.50
Iwan's Sickle Edge ..... ₩ doz. $10.00
Iwan's Serrated ..... ₩ doz., $11.00
Lightning, (Genuine) ..... $6.25@6.50
Maine ..... ₩ doz. $8.50

Mincing—
Buffalo ..... ₩ gro. $15.00

Miscellaneous—
Farriers' ..... doz. $2.00@3.00
Wossenholm's ..... ₩ doz. $3.00@3 25

Knobs—
Base, 2¼-inch, Birch, or Maple. Rubber tip, gro ..... $1.20@1.25
Carriage, Jap, all sizes..gro. 30@35c
Door, Mineral ..... doz. 60@65c
Door, Por. Jap'd ..... doz. 65@70c
Door, Por. Nickel ..... doz. $2 00@2.10
Bardsley's Wood Door, Shutter, &c...15%
Picture, Sargent's ..... 60&10%

Ladders, Step—
Handy Ladder Works:

Length.	Extended Length. Feet.	Shipped Ready for Use.	Shipped K. D. Per doz.	Per doz.
4	7	$15.00		$14.00
5	9	19.50		17.00
6	11	24 50		21.00
7	13	29.50		25.00
8	15	34.00		29.00
9	17	39.00		32.00
10	19	43.00		35.00
11	21	46.50		40.00
12	23	51.00		45.00

Ladies— Melting—
P. & C. Mfg. Co. 25%
P., S. & W. ..... 40@40&10%
Reading ..... 50&10%
Sargent's ..... 40@40&10%

Lanterns— Tubular—
Regular Tubular ..... *doz. $4.35@4.75*
Side Lift Tubular ..... *doz. $4.75@5.25*
Square Lift Tubular ..... *doz. $4.75@5.25*
Other Styles ..... *40&10@40&10&5%*

Bull's Eye Police—
No. 1, 8¾ inch *$3.60*
No. 2, 3 inch *$4.00*

Latches, Thumb—
Roggin's Latches ..... *doz. 32@33c*

Lawn Mowers—
See *Mowers, Lawn.*

Leaders Cattle—
Small ..... *doz. 50c; large, 55c*
Covert Mfg. Co. ..... 45&2%

Lemon Squeezers—
See *Squeezers, Lemon.*

Lifters, Transom—
Solid Grip, Payson Mfg. Co. 80%
R. & E. 45%

Lines—

Wire Clothes, Nos...	*18*	*19*	*20*
100 feet	*$2.20*	*2.00*	*1.65*
75 feet	*$1.80*	*1.70*	*1.30*

Ossawan Mills.
Crown Solid Braided Chalk 33⅓%
Mason's, No. 0 to No. 5 ..... 33⅓%
Samson Cordage Works:
Solid Braided Chalk, No. 0 to 3 ..... 40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gr. 30%

Locks— Cabinet—
Cabinet Locks ..... *33⅓@33⅓&7½%*

Door Locks, Latches, &c.—
[Net prices are very often made on these goods.]
Reading Hardware Co. 40%
R. & E. Mfg. Co. 50%
Sargent & Co. ..... 40@40&10%

Elevator—
Stowell's 33⅓%

Padlocks—
Wrought Iron ..... *75&10@80%*
R. & E. Mfg. Co. Wrt. Steel and Brass. 50%

Sash, &c.—
Fitch's:
Bronze and Brass 66⅔%
Iron 70%
Ives' Patent.:
Bronze and Brass 62½%
Iron 65%
Wrought Bronze and Brass ..... 55&5%
Wrought Steel 60%
Payson's Signal 80%
Reading ..... 60&10&10@70%

Machines— Boring—
Without Augers.

	Upright.	Angular.
Improved No. 3	$4.25	No. 1 $5.00
Improved No. 4	3.75	No. 2 3.38
Improved No. 5	2.75	
Jennings'	2.50	3.00
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75
Swan's, No. 500.. 5.10		No. 200 6.45

Hoisting—
Moore's Anti-Friction Differential Pulley Block 30%
Moore's Hand Hoist, with Lock Brake. 20%
Moore's Portable Pneumatic Hoist 25%

Ice Cutting—
Chandler's 15%

Washing—
Wayne American ..... ₩ doz. $28.00
Western Star, No. 2 ..... ₩ doz. 28.00
Western Star, No. 3 ..... ₩ doz 30.00
St. Louis, No. 41 ..... ₩ doz. 60.00

Mallets—
Hickory ..... *45&5@50%*
Lignumvitæ ..... *45&5@50%*
Tinners', Hickory and Applewood, doz. ..... *50@55c*

Mats— Door—
Elastic Steel (W.G. Co.) 10%

Mattocks—
See *Picks and Mattocks.*

Meat Cutters—
See *Cutters, Meat.*

Milk Cans— See *Cans, Milk*

Mills— Coffee—
Enterprise Mfg. Co. ..... 25@30%
National, list Jan. 1, '94 ..... 30%
Parker's Columbia and Victoria ..... 50&10@60%
Parker's Box and Side ..... 50&10@60%
Swift, Lane Bros. 30%

Mincing Knives—
See *Knives, Mincing.*

Molasses Gates—
See *Gates, Molasses.*

Money Drawers—
See *Drawers, Money.*

Mowers, Lawn—
Net prices are generally quoted.
Cheap ..... *all sizes, $1.80@2.10*
Good ..... *all sizes, $2.50@2.75*

	10	12	14	16-inch
High Grade	*4.25*	*4.50*	*4.75*	*5.00*
Continental ..... 60&10&5%				
Great American ..... 70&5%				
Great American Ball Bearing .. 60&10&5%				
Quaker City ..... 70&5%				
Pennsylvania ..... 60&10&5%				
Pennsylvania Golf 50%				
Pennsylvania Horse 60%				
Pennsylvania Pony 45%				
Philadelphia:				
Styles M., S., C., K., T. ..... 70&5%				
Style A, all Steel ..... 65&10%				
Style E, Low Wheel ..... 60&10%				
Style E, High Wheel ..... 70&10&5%				
Drexel and Gold Coin, low list .. 50&5%				

Nails—
Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered. List July 20, 1899 ..... *85&10%*
Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—

Nos.	6	7	8	9	10	
A. C.	.25¢	23¢	22¢	21¢	21¢	40&5%
Ausable	.25¢	23¢	22¢	21¢	21¢	50&10%
Capewell	.19¢	18¢	17¢	16¢	16¢	10&5%
C. B. K.	.25¢	25¢	23¢	21¢	21¢	40%
Champ'n	25¢	26¢	25¢	24¢	23¢	40&10&5%
Clinton	.19¢	17¢	16¢	15¢	14¢	30&10&5%
Maud S.	.25¢	23¢	22¢	21¢	21¢	50%
Neponset	.23¢	21¢	20¢	19¢	18¢	40%
Putnam	.23¢	21¢	20¢	19¢	18¢	33⅓%
Vulcan	.23¢	21¢	20¢	19¢	18¢	.25&10%
Amer can. Nos. 5 to 10 ₩ ₤						9@9½¢
Jobbers' special brands						*per lb. 8@9c*

Picture

	1½	*2*	*2¼*	*3*	*3½ in.*
Brass Head.	*.45*	*.60*	*.70*	*.95*	*1.00 gro.*
Por. Head	*..*	*1.10*	*1.10*	*1.10*	*.. gro.*

Nippers, See *Pliers and Nippers.*

Nut Crackers—
See *Crackers, Nut.*

Nuts—
Cold Punched } *Off*
Mfrs. or U. S. Standard. } *list.*
Hexagon, plain *5.80c*
Square, plain *5.40c*
Square, C. T. & R. *5.60c*
Hexagon, C. T. & R. *6.30c*
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd. } 33⅓&10%
Square Blank or Tapped *5 60c*
Hexagon Blank or Tap'd *6.30c*

Oakum—
Best or Government ..... *lb. 6¼c*
Navy ..... *lb. 5 c*
U. S. Navy ..... *lb. 5¾c*
Plumbers' Spun Oakum *8¾c*
In carload lots ¼c lb. off f.o.b. New York.

Oil, Axle—
Snow Flake:
1 pt. cans, per doz. $3.00
1 qt. cans, per doz. $4.80
1 gal. cans, per doz. $15 00
5 gal. cans, per doz. $66.00

Oil Tanks— See *Tanks, Oil.*

Oilers—
Brass and Copper ..... *40&10@50%*
Tin or Steel ..... *60c10@65%*
Zinc ..... *60c10@65%*
Paragon:
Brass and Copper *40c10%*
Tin or Steel *60c10%*
Zinc *60c10%*
Malleable, Hammers' Improved, No. 1 $3.60; No. 2, $4; No. 3, $4.40 ₩ doz. 20%
Malleable, Hammers' Old Pattern, same list ..... 50&10%
Wilmot & Hobbs Mfg. Co:
Spring Bottom Cans ..... 70@70&10%
Railroad Oilers etc ..... 60@60&10%

Openers—
Can—
French ..... *doz. 35c*
Iron Handle ..... *doz. 25@37c*
Sprague, Iron Hdle. ..... *per doz 35@40c*
Sardine Scissors ..... *doz. $1.75@$3.00*
Tip Top ..... per doz. $0.75
National, ₩ gro. ..... $1.75@$2.00
Stowell's ..... per doz. 40@45c
Waldorf, ₩ gro. $3.65

Egg—
Nickel Plate ..... per doz., $2.25
Silver Plate ..... per doz., $3.50

Packing—
Asbestos Packing, Wick and Rope, 13c lb.

Rubber—
Sheet, C. I. ..... *8@12½*
Sheet, C. O. S. ..... *9@13%*
Sheet, C. B. S. ..... *10@14%*
Sheet, Pure Gum ..... *50@70%*
Sheet, Red ..... *35@40%*
Jenkins' Standard, ₩ ₤ 80c ..... 35@25&5%

Miscellaneous—
American Packing ..... *7@10c lb.*
Cotton Packing ..... *13@14c lb.*
Italian Packing ..... *9@12¼c lb.*
Jute ..... *3½@5c lb.*
Russia Packing ..... *7@11c lb.*

Pails— Creamery
S. S. & Co., with gauges.. No 1 $6.50; No. 2, $6.75 ₩ doz.

Galvanized—
Price per gro.

Quart.	*10*	*12*	*14*
Water, Regular	*18.00*	*$1.00*	*$4.00*
Water, Heavy	*24.00*	*27.00*	*30.00*
Fire, Rd. Bottom.	*31.00*	*33.00*	*35.00*
Well	*27.00*	*29.00*	*31.00*

Pans— Dripping—
Standard List ..... *60c&5@60&10&5%*

Fry—
Common Lipped:

No.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.60*	*.75*	*.85*	*.95*	*1.15*

Roasting and Baking—
Regal, S. S. & Co. ₩ doz. Nos. 5, $4.50; 10 $5.00; 20, $5.50; 30, $6.00
Simplex, ₩ gro. No. 40 $30.00; 50, $34.50; 60 $39 00; 140, $33.00; 150, $37 50; 160, $43.00.

Paper—
Building Paper—

Asbestos:	*lb.*
Building Felt	*3c*
Mill Board, sheet, 40 x 40 inches	*4c*
Mill Board, roll, thicker than 1-16 inch	*c*
Mill Board, roll, 1-16 in. thick and less	*3c*

	Per roll
Rosin Sized Sheathing:	*500 sq. ft.*
Light wt., 20 lbs. to roll	*$0.33*
Medium wt., 30 lbs. to roll	*$0.47*
Heavy wt., 40 lbs. to roll	*$0.58*
Medium Grades Water Proof Sheathing	*$0.65@1.25*
Deafening Felt, 2, 6 and 4½ sq. ft. to lb., ton	*$36.00@37.00*
Red Rope Roofing, 250 sq. feet per roll	*$1.65*

Tarred Paper.
1 ply (roll 300 sq. ft.), ton ..... *$36.00@37.00*
2 ply, roll 108 sq. ft *50c*
3 ply, roll 108 sq. ft *70c*
Slater's Felt (roll 500 sq. ft.) ..... *.60@60c*
R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.) $2.75

Sand and Emery—
List Dec. 23, 1899 ..... *50c10@50c10c10%*

Parers— Apple—
Advance ..... ₩ doz. $4.50
Baldwin ..... ₩ doz. $5.00
Bonanza ..... each $5.00
Dandy ..... each $7.50
Eureka, 1898 ..... each $16.00
Family Bay State ..... ₩ doz. $12.00
Hudson's Little Star ..... ₩ doz. $4.00
Hudson's Rocking Table ..... ₩ doz $5.50
Improved Bay State ₩ doz. $27.00@30.00
New Lightning ..... ₩ doz. $5.50
Reading 72 ..... ₩ doz. $4.00
Reading 78 ..... ₩ doz. $7.00
Turn Table '98 ..... ₩ doz. $5.50
White Mountain ..... ₩ doz. $4.00

Potato—
Saratoga ..... ₩ doz. $5.50
White Mountain ..... ₩ doz. $4.50

Paris Green— *per lb.*
In Arsenic kegs or casks *13¼c*
In kegs, 100 to 175 lbs ..... *13 c*
In kits, 14, 28, 56 lbs ..... *14 c*
In paper boxes, 2 to 5 lbs ..... *14 c*
In paper boxes, 1 lb *14½c*
In paper boxes, ½ lb *15½c*
In paper boxes, ¼ lb *16½c*

Picks and Mattocks—
List Feb. 23, 1899 ..... *70c10@70c10c5%*

Pinking Irons—
See *Irons, Pinking.*

Pins— Escutcheon—
Brass *60%*
Iron, list Nov. 11, '85 ..... *60%*

Pipe, Cast Iron Soil—
Factory Shipments—Carload lots.
Standard, 2-6 in. *65c5%*
Extra Heavy, 2-6 in. *70c10%*
Fittings ..... *75c10&5%*
NOTE.—*Freight allowed on Carload lots.*

Pipe, Merchant, Boiler Tubes, &c.—
Less than Carloads to Consumers.
Merchant Pipe.

	Black.	*Galvanized.*
⅛ to ⅓ inch	61%	48%
¾ to 10 inch	68½%	56%

Boiler Tubes

Steel.	*Up to 22 feet.*
1 to 1¼ inch and 2¾ to 5 inch inclusive	*65½%*
2 to 2¼ inch, inclusive	*60%*
6 to 10 inches	*55%*

Iron.	
1 to 1¼ inch and 1¾ in.	*45½%*
1¾ to 2¼ inch	*45%*
2¾ to 13 inch	*55%*

Casing, Cut Lengths.	*S. & S.*
2 to 3 inch	*55½%*
3¼ to 4 inch	*55%*
4¼ to 12½ inch	*61½%*

NOTE.—*Prices to jobbers are from 5@ 10% less than above.*

Pipe, Sewer—
Delivered at Eastern Points.
Standard Pipe, 2 to 24 inch ..... *70@75%*
Fittings, 2 to 24 inch ..... *70@75%*

Planes and Plane Irons—
Wood Planes—
Molding ..... *40c2½@40c10%*
Bench, First quality ..... *45c10@45c10c5%*
Bench, Second quality ..... *50c10@50c10c5%*
Bailey's (Stanley R. & L. Co) 50&10@50&10&10%
Gage Self Setting 35%

Iron Planes—
Bailey's (Stanley R. & L. Co) ..... 50&10@50&10&10%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 25&10@25&10&10%
Sargent's ..... 50&10&10%

Plane Irons—
Wood Bench Plane Irons ..... *50c5@50c10c5%*
Buck Bros. 30%
Butcher's ..... $5.00@5.25 to 2
Stanley R. & L. Co... 50&10@50&10&10%
L. & L. J. White ..... 20&5@25%

Planters, Corn, Hand.
Kohler's Eclipse ..... ₩ doz. $9.00

Plates—
Felloe ..... *lb. 5¾@4c*
Self-Sealing Pie Plates (S. S. & Co.), ₩ doz. $2.00 ..... 50%

Pliers and Nippers—
Button Pliers ..... *70c10@75%*
Gas Burner, per doz., 5 in., $1.15@ $1.20; 6 in., $1.35@$1.45
Gas Pipe .. *7* *8* *10* *12-in.*
$1.75 *$2.00* *$2.75* *$3.75*
Acme Nippers ..... 50&50&5%
Bernard's:
Parallel Pliers, &c 35%
Paragon Pliers ..... 50&5%
Lodi Pliers ..... 50&5%
Elm City Fence Pliers 35%
Cronk Hanger Co.:
American Button ..... .75&10%
Cronk's 60%
Improved Button ..... 70&10%
Stub's Pattern 50%
Combination and others 25%
Heller's Farriers' Nippers, Pincers, and Tools 50&50&5%
P., S. & W. Tinners' Cutting Nippers, 30@ 0&10%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—
Plumbs and Levels ..... *75@75&10%*
Davis Iron, Machinist Nos. 1 to 14 ..... 30%
Davis Iron, Adjustable Nos. 6 to 49 ..... 35%
Disston's 70%
Pocket Levels ..... 75&10&10@75&10%
Stanley R. & L. Co ..... 70&10@70&10&10%
Stanley's Duplex ..... 25&10@25&10&10%
Woods' Extension 33⅓%

Poachers, Egg—
Buffalo Steam Egg Poachers, ₩ doz. No. 1, $7.20; No. 2, $11.00 No. 3, $11.00; No. 4, $14.50 ..... 50%

Points, Glaziers'—
Bulk and 1 lb. papers ..... *lb. 8 @ 8½c*
½-lb. papers ..... *lb. 8½@ 8¾c*
¼-lb. papers ..... *lb. 8½@ 8¾c*

Pokes, Animal—
Ft. Madison Hawkeye ..... ₩ doz. $3.25
Ft. Madison, Western ..... ₩ doz. $3.75

Police Goods—
Manufacturers' Lists ..... *25@25&5%*
Tower's 35%

Polish—Metal—
Prestoline Liquid, No. 1 (½ pt.), ₩ doz. $3.00; No. 2 (1 qt.), $9.72 ..... 40%
Prestoline Paste ..... 40&10%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ₩ doz. 50¢; ₩ gr. $4.50; ½ ₤ boxes, ₩ doz. $1.25; 1 ₤ boxes, ₩ doz. $2.25. U. S. Liquid, 8 oz. cans, ₩ doz. $1.35; ₩ gr. $12.00.
Barkeepers' Friend Metal Polish, ₩ doz. $1.75; ₩ gr. $18.00.
Wynn's White Silk, ¼ pt. cans, ₩ doz. $2.00

Stove—
Black Eagle Benzine Paste, 5 ₤ cans ..... ₩ ₤ 10¢
Black Eagle, Liquid, ½ pt. cans. ..... ₩ doz. 75¢
Black Jack Paste, ¾ ₤ cans, ₩ gro. $9.00
Ladd's Black Beauty, gr. $10.00 ..... 50¢
Joseph Dixon's, ₩ gr. $5.75 ..... 10¢
Dixon's Plumbago ..... ₩ ₤ 8¢
Fireside ..... ₩ gr. $2.50
Gem, ₩ gr. $4.50 ..... 10¢
Japanese ..... ₩ gr. $3.50
Jet Black ..... ₩ gr. $3.50
Peerless Iron Enamel, ½ pt. cans ..... ₩ doz. $1.50
Wynn's:
Black Silk, 5 ₤ pail ..... each 70¢
Black Silk, ½ ₤ box ..... ₩ doz. $1.00
Black Silk, 5 oz. box ..... ₩ doz. $0.75
Black Silk, ½ pt. liq ..... ₩ doz. $1.00

Poppers, Corn—
Round or Square:
1 qt ..... *gro. $6.50@$7.00*
1½ qt ..... *gro. 9 50@ 10 00*
2 qt ..... *gro. 10.50@ 11.50*

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Potato Parers—
See *Parers, Potato.*

Pots— Glue—
Enameled *55*
Tinned *40*

Powder—
In Canisters:
Duck, ½ lb. each *45*
Fine Sporting, 1 lb. each *10*
Rifle, ½-lb. each *10*
Rifle, 1-lb. each *10*
In Kegs:
Duck, 6½-lb. kegs *$2*
Duck, 12½-lb. kegs *$4*
Duck, 25-lb. kegs *$8*
Rifle, 6½-lb kegs *$1*
Rifle, 12½-lb. kegs *$2*
Rifle. 25-lb. kegs *$4*
King's Semi-Smokeless:
Keg (25 ₤ bulk) $6
Half Keg (12½ ₤ bulk) $3
Quarter Keg (6¼ ₤ bulk) $1
Case 24 (1 ₤ cans bulk) $8
Half case (1 ₤ cans bulk) $4
King's Smokeless: Shot Gun
Keg (25 ₤ bulk) $12 00 $15
Half Keg (12½ ₤ bulk) 6.25 7
Quarter Keg (6¼ ₤ bulk) 3.25 4
Case 24 (1 ₤ cans bulk)..14.00 17
Half case 12 (1 ₤ cans blk) 7.25 8

Presses—
Fruit and Jelly—
Enterprise Mfg. Co. ..... 20@30%

Pruning Hooks and Shears— See *Shears.*

Pullers, Nail—
Cyclo ..... 40@40&10%
Diamond B, No. 2, case lots, ₩ doz. $6
Diamond P, No. 2, case lots, ₩ doz. $5
Giant, No. 2 ..) doz. $18; No. 2, $16.50
No. 3, $15 .....
Miller's Falls, No. 3, per doz. $12.00 ..... 15&10%
Pelican ₩ doz. $9.00 ..... 40&10%
Scranton, Case Lots:
No. 1 (large), ₩ doz. $6.50; No. 2 (large) $5.75; No. 3 (small), $5.00; No. 2-B (large) $5.50; No. 3-B (small), $5.00; No. 1-B (large), $4.50; No. 3-D (small) $4.00.

Pulleys—Single Wheel—

Inch	*2*	*2½*
Awning ..doz.	*$0.45*	*.70*
Inch	*2*	*2¼*
Hay Fork, Swivel or Solid Eye		
	doz.	*$1.35*
Hot House..doz	*$0.65*	*.90*
Inch	*1¼*	*1½*
Screw..doz.	*$0.15*	*.20*
Inch	*1¾*	*2*
Side..doz.	*$0.30*	*.40*
Inch	*1½*	*1¾*
Tackle..doz.	*$0.30*	*.45*

Stowell's:
Ceiling or End, Anti-Friction ..
Dumb Waiter, Anti-Friction ..
Hay Fork, Anti-Friction, 5-in. Wheel, $12.00 .....
Electric Light .....
Side, Anti-Friction .....

Sash Pulleys—
Common Frame: Square or Round End per doz., 1¾ in., 14c.; 2 in., 16c.
Auger Mortise, no Face Plate, doz. 1¾ in., 15c.; 2 in., 18c.
Auger Mortise, with Face Plate, doz., 1¾ in., 18c.; 2 in., 19c.

Acme.....1¾(in., 16¢; 2 in., 19¢
Common Sense, 1¾ in.... ₱ doz., 18¢; 2 in., 20¢.
Fox-All-Steel, Nos. 3 and 7, 2¼ in.....
₱ doz. 25¢
No. 9, 1¾ in.....₱ doz. 20¢
Extra for Plated Finish...₱ doz. 20¢
Extra for Anti-Friction Bronze Bushing.....₱ doz 10¢
Grand Rapids All Steel Noiseless...40%
Ideal No. 13.....1¾ in.. ₱ doz., 16¢
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Troy...1¾ in., 14½¢; 2 in., 16½¢
Star.....1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern.....60@ ...%
Pitcher Spout.....75@....%
Pump Leathers, Lower and Plunger Valves—Per gro:

Inch..	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch..	3	3¼	3½	3¾	4
	$3.30	3.60	3.85	4.10	4.40

Barnes Dbl. Acting (low list)..... 50%
Flint & Walling's Pitcher Spout.....75%
Loud's Suction Pumps, U. . Co.....20%
Myer's Pumps, low list 50%
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.....30%

Punches—

Revolving (4 tubes)...doz. $3.50@3.75
Saddlers' or Drive, good..doz. 65@70c
Spring, good quality.....$1.65@1.75
Bemis & Call Co.'s Cast Steel Drive....50%
Bemis & Call Co.'s Check.....55%
Bemis & Call Co.'s Spring.....50%
Niagara Hollow Punches.....45%
Niagara Solid Punches.....55%
Steel Screw, B & K. Mfg. Co.....40%
Tinners' Hollow, P., S. & W. Co.....
35@35&5%
Tinners' Solid, P., S. & W.Co., ₱ doz., $1.44.....60%

Rail— Barn Door, &c.—

Barn Door, Light.½ ⅝ ¾ ⅞ In.
100 feet.....$2.00 $2.50 $3.00 $3.50
B. D., for N. E. Hangers:

	Small.	*Med.*	*Large.*
100 feet.....	*$2.20*	*2.70*	*3.20*

Sliding Door, Bronzed Wr't Iron, ft. 6½¢
Sliding Door, Iron Painted....2½@3c
Sliding Door, Wrought Brass, 1¼ in..... lb. 36c..30%
Cronk's Double Braced Steel Rail, ₱ foot.....3¼¢
Cronk's O. N. T. Rail.....3¼¢
Lanes' O. N. T., ₱ 100 ft., 1 inch...$2.75
Lanes' Standard, ₱ 100 ft.....3.75
Lawrence Bros.' .....₱ ft. 4¼¢
McKinney's None Better.....₱ ft. 3¾¢
McKinney's Standard.....₱ ft. 4 ¢
Stowell's Cast Rail.....1½¢
Stowell's Steel Rail, Plain.....25%
Stowell's Wrought Bracket, Plain....3¼¢

Rakes—

Net Prices, Malleable Rakes:

	10	*12*	*14*	*16-tooth*
Shank....	*$1.50*	*1.60*	*1.75*	*1.85*
Socket...	*$1.65*	*1.80*	*1.95*	*2.10*

Sept. 1, 1900, List:
Cast Steel.....70¢&5&2%
Malleable.....70¢&10@75¢&5%
Lawn Rakes, Metal Head, per doz.,
20 teeth.....$3.25@3.50
24 teeth.....$3.60@3.75
Fort Madison Red Head Lawn.....$3.25
Fort Madison Blue Head Lawn.....$3.00
Jackson Lawn, 29 and 30 teeth.....
₱ doz. $4.00
Kohler's:
Lawn Queen, 20-tooth, ₱ doz.....$3.60
Lawn Queen, 24-tooth, ₱ doz.....$3.75
Paragon, 20-tooth, ₱ doz.....$2.85
Paragon, 24-tooth, ₱ doz.....$3.00
Steel Garden, 14-tooth, ₱ doz.....$3.00
Malleable Garden, 14-tooth.....
₱ doz. $2.25

Rasps, Horse—

Disston's.....75%
Heller Bros.....60&10&10%
McCaffrey File Co. Horse Rasps.....
60&10&5%
New Nicholson Horse Rasp.....70&10%
See also *Files.*

Razors—

Boracic.....70%
Fox Razors, No. 42...₱ doz. $20.00 } disc. 40%
Fox Razors, No 44...₱ doz. $24.00 }
Fox Razors, No. 82, Platina, ₱ doz $24.00
Silberstein:
Carbo Magnetic.....$18.00
Griffon, No. 65.....$15.00
Griffon, No. 00.....$12.00
All other Razors.....40%
Safety Razors.....40%

Razor Strops—

See *Strops, Razor.*

Reels— Fishing—

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber Populo and Salmon, Single Action, Multiplying and Quadruple, all sizes.....25%
Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 304 P and PN, 00304P and PN, 502 and 502N, 502 and 502N, 02084N, Competitor.50%
Hendryx Multiplying and Quadruple Series, 3004N and PN, 42 and PN, 3904N, 3904P and PN, 003904PN, 0924 and 0924N, 5009N and PN.....40&10%
Shakespeare, Style C.....25%

Registers—

Leading Sizes.
Black Jap.....60¢10@...%
White Jap.....40¢10@50%
Bronzed.....40¢10@50%
Nickel Plated.....50¢10@60%
Electro Plated.....40¢10@50%
There is a good deal of irregularity in prices of Registers, and some very low quotations are current on Black Japanned.

Revolvers—

Single Action.....80@85c
Double Action.....$1.35
Automatic.....$1.75
Hammerless.....$2.25

Riddles, Grain or Sand—

16in. per doz.....$2.00@$2.25
17 in. per doz.....$2.25@$2.50
18 in. per doz.....$2.50@$2.75

Rings and Ringers—

Bull Rings—

	2	*2½*	*3 Inch.*
Steel.....	*$0.80*	*0.90*	*0.95 doz.*
Copper.....	*1.10*	*1.30*	*1.50 doz.*

Hog Rings and Ringers—

Hill's Rings....gro. boxes, $4.50@4.75
Hill's Ringers, Gray Iron doz. 55@60c
Hill's Ringers, Mal. Iron, per doz 75@80c
Blair's Rings.....per gro. $5.75@6.00
Blair's Ringers...per doz. $0.65@ .70
Brown's Rings...per gro. $6.00@6.25
Brown's Ringers..per doz. $1.00@1.10
Rapid Rings.....₱ gro. $6.00
Rapid Ringers.....₱ doz. $3.50

Rivets and Burrs—

Copper.....50@50¢5%
Iron or Steel:
Tinners'.....70@70¢10%
Miscellaneous.....70@70¢10%

Rivet Sets—See *Sets.*

Roasting and Baking Pans—See *Pans, Roasting and Baking.*

Rollers—

Acme, Stowell's Anti-Friction.....50%
Barn Door, Sargent's list.....50&10&10%
Cronk's Stay.....66⅔%
Cronk's Brinkerhoff.....66⅔
Lane's, Stay.....33⅓%
Stowell's Barn Door Stay...₱ doz. $1.25

Rope—

Manila, 7-16 in. and larger. lb. 10 c
Manila.....½-inch lb. 10½c
Manila, ¼ and 5-16 inch lb. 11 c
Manila, Tarred Rope, 15 thread ..... lb. 10 c
Manila Hay Rope, Med'm lb. 10 c
Sisal, 7-16 in. and larger lb. 7 c
Sisal .....¾-inch lb. 7½c
Sisal.....¼ and 5-16 inch lb. 8 c
Sisal, Hay Rope, 2 to 10 ply ..... lb. 7 c
Sisal, Tarred, Medium Lath Yarn..... lb. 6½c
Cotton Rope:
Best...¼-in. and larger lb. 14 c
Midium, ¼-in. and larger lb. 11½c
Com., ¼-in. and larger lb. 9 c
Jute Rope, No. 1, ¼ in. and up..... lb. 6½c
Jute Rope, No. 2, ¼-in. and up ..... lb. 6 c

½c less in good lots.

Wire Rope—

Galvanized.....25¢7½&5%
Plain.....30¢7½&5%

Ropes, Hammock

Covert Mfg. Co.....45&2%
Covert Saddlery Works.....60&5%

Rules—

Boxwood...75¢10¢10¢10¢10@75¢10 ¢10¢10¢10&5%
Ivory...40¢10¢10@40¢10¢10¢10¢10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....50&10%
Stanley R. & L. Co.:
Boxwood...75&10&10@75&10&10&10%
Ivory.....35&10@35&10&10%

Sad Irons—See *Irons, Sad.*

Sand and Emery Paper and Cloth—

See *Paper and Cloth.*

Sash Cords—See *Cord, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—

See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers Sausage.*

Saw Frames—

See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins':
Circular.....50@50&10%
Band.....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50&10%
One-Man Saw.....40%
Wood Saws.....40%
Hand, Compass, &c.....40%
Disston's:
Circular Solid and Inserted Tooth.50%
Band ⅜ to 1¼ in. wide.....60%
B and ¼ to 1¾.....70%
Crosscuts.....70%
Narrow Crosscuts.....45@45&10%
Mulay, Mill and Drag.....50@50&10%
Framed Woodsaws.....50%
Woodsaw Blades.....35@35&7½%
Woodsaw Rods.....40@40&7½%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8.....25@25&7½%
Hand Saws, Nos. 7, 07, 107½, 3, 1, 0, 00, Combination.....30@30&7½%
Compass, Keyhole, &c.....25@25&7½%
Butch r Saws and Blades..35@35&7½%
C. E. Jennings & Co.'s:
Back Saws.....25%
Butcher Saws.....35%
Compass and Key Hole Saws.....25%
Framed Wood Saws.....40%
Hand Saws.....25@30%
Wood Saw Blades.....45%
Peace:
Circular and Mill.....50%
Cross Cuts, list Jan. 1, '99.....50%
Hand, Panel and Rip.....30%
Richard-on:
Circular and Mill.....50%
Hand, &c.....30%
X Cuts, list Jan. 1, '99.....50%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws..50%
Band Saws.....50%
Back Saws.....35@35&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....35@35&7½%
Compass, Keyhole, &c.....25@25&7½%
Wood Saws.....35@35&7½%

Saws—Hack Saws—

Disston:
Concave Blades.....25%
Keystone.....30%
Hack Saw Frames.....30%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180, 330.....40%
Hack Saws, Nos. 175, 180, 330, complete.....40%
Griffin's Hack Saw Frames.....45%
Griffin's Hack Saw Blades.....45%
Star Hack Saws and Blades.....15&10%

Saws—Scroll—

Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scale Beams—

See *Beams, Scale.*

Scales—

Family, Turnbull's.....30@50&10%
Counter:
Hatch, Platform, ½ oz to ½ lbs. doz. $5.50
Two Platforms, ½ oz to 8 lbs. doz. $16.00
Union Platform, Plain...$1.70@1.80
Union Platform, Striped $1.85@2.15
Chatillon's:
Eureka.....25%
Favorite.....40%
Grocers' Trip Scales.....50%
Pelouze Scales—Household, Counter, Confectionery, Postal, Ice, &c.....50%
"The Standard" Portables.....45%
"The Standard" R. R. and Wagon....50%

Scrapers—

Box, 1 Handle .....doz $2.25@2.50
Box, 2 Handle.....doz. $3.75@4.00
Ship, No. 1, doz. $3.50; No 2. $2.25@2.40
Adjustable Box Scraper (S. R. & L. Co.) $8.00.....30&10%

Screens, Window and Frames—

Bonanza Window Screens....60@60&5%
Flyer Pattern Window Screen.60@60&5%
Maine Window Screen Frames 40&10&5%
Perfection Window Screens....60@60&5%
Phillips' Window Screen Frames.....
60&10&5%
Porter's Hummer Window Screens..
60@60&5%
Porter's Klondike Window Screens.....
60&2½@60&7½%
Wabash Spring Adj. Screen.....50%
See also *Doors.*

Screw Drivers—

See *Drivers, Screw.*

Screws—

Bench and Hand—

Bench, Iron..doz, 1 in., $3.00@3.25;
1¼, $3.50@3.75; 1¼, $4.00@4.50
Bench, Wood, Beech..doz. $3.50@3.75
Hand, Wood.....30&5@40%
Hand, R. Bliss Mfg Co.....35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1, '99.....75&15@...%
Coach and Lag, Gimlet Point, list Oct. 1, '99.....75&10@...%
Hand Rail, list Jan. 1, '81.60&10@...%

Jack Screws—

Standard List.....75@75&10%
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....50&50&5%
Sargent.....70&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.50@50&10%
Flat or Round Head, Brass..... 50@50&10%

Set and Cap—

Set (Iron or Steel) .....70&10%
Sq. Hd. Cap.....65&10%
Hex. Hd. Cap.....65&10%

Wood—

List Jan. 1, 1900.
Manufacturers' printed discounts:
Flat Head, Iron.....87½@90%
Round Head, Iron.....85@87½%
Flat Head, Brass .....85@87½%
Round Head, Brass.....82½@85%
Flat Head, Bronze.....75@80%
Round Head, Bronze.....72½@77½%
Drive Screws.....87½@90%

Scroll Saws—See *Saws, Scroll.*

Scythes—

Grass Scythes:
Natural Finish.....per doz. $7.25
Polished Blade.....per doz. $7.75
Painted or Bronzed..per doz. $7.50
Weed and Bush..per doz. $7.25@7.50

Scythe Snaths—

See *Snaths, Scythe.*

Seeders— Raisin—

Enterprise.....25@30%

Sets— Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls doz. $2.00@2.25
Wood Hdle., 14 Awls, 6 Tools..... doz. $3.50@3.60
Aiken's Sets, Awl and Tools:
No. 20, ₱ doz. $10.00.....50&10&10%
Fray's Adj. Tool Holds...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18 .... 15&10%
Stanley's Excelsior:
No. 1, $7.50; No. 2 $4.00; No. 3, $5.50.....30&10@30&10&10%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.....
₱ doz.....$9.00

Nail—

Square.....per gro. $2 50
Round, Blk. and Pol., assorted..... gro. $1.80@2.50
Octagon.....gro. $4.25@4.75
Knurled. Good.....gro. $5.00@6.50
Buck Brothers.....27½%
Cannon's Diamond Point, ₱ gr. $12...25%
Mayhew's.....per gro. $9.00
Snell's Corrugated, Cup Pt. ...gro $7.50
Snell's Knurled, Cup Pt. ...gro $7.50

Rivet—

Regular list.....70@70¢10¢5%

Saw—

Aiken's:
Genuine.....₱ doz. $5.50@6.00
Imitation .....₱ doz. $3.00@3.10
Atkin's.:
Criterion.....40%
Adjustable.....40%
Bemis & Call Co's.:
Cross Cut.....30%
Hammer, new Pat.....45%
Plate.....30%
Spring Hammer.....25%
Disston's Star and Monarch.....25%
Morrill's No. 1, $15.00.....40&10%
Nos. 3 and 4, Cross Cut, $23.00.....
50&20&5%
No. 5, Mill, $31.00.....50&10&10%
No. 10, $15.50.....40&20%
No. 11, $16.00.....40&20%
Taintor Positive, ₱ doz. $18.....60%

Sharpeners Knife—

Chicago Wheel & Mfg. Co.....5%
Smith & Hemenway Co .....70&5%
Tanite Mills ₱ gross, $14.40...25@33⅓%

Sharpeners Skate—

Eureka Skate Sharpener.....₱ doz. $2.00

Shaves Spoke—

Iron.....*doz. $1 00@1 75*
Wood.....*doz. $1.75@2.00*
Bailey's (Stanley R. & L. Co.).....50&10%
Goodell's, ₱ doz. $9.00.....15&10%

Shears—

Cast Iron...	*7*	*8*	*9 in.*
Best	*$16.00*	*18.00*	*20.00 gro.*
Good.....	*$13.00*	*15.00*	*17 00 gro.*
Cheap.....	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality, Jap.....70@70¢10%
" Nickel.....60@60¢10%
Fair qual. Jap.....80@80¢5%
" Nickel.....75@75¢10%
Tailors' Shears.....40@40¢10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailors' Shears.....40%
Wilkinson's Hedge.....50%
Wilkinson's Sheep.....1900 list, 50%

Tinners' Snips—

Steel Blades.....20¢10%
Steel Laid Blades .....40¢10%
Forged Handles, Steel Blades, Berlin.....40@10&10%
Jennings & Griffin Mfg. Co's. 7 to 10 inch.....50%
Niagara Snips.....40%
P. S. & W. Co.....20%

Pruning Shears and Tools—

Cronk's Grape Shears.....33⅓%
Cronk's Pruning Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25@25&10%
Disston's Pruning Hook, ₱ doz. $12.00 .....25@25&10%
John T. Henry Mfg. Company:
Pruning Shears, all grades.....40@40&5%
Orange Shears.....50&10&50&20%
Grape.....40&10&50%
Tree Pruners.....75%
Nagley's Pruning Shears.....10&5%
P., S. & W. Co.....33⅓%

Sheaves—Sliding Door—

Stowell's Anti-Friction.....50%
Patent Roller Hatfield's, Sargent's list, 75&10&10%
Reading.....70&10@75%
R. & E. list.....33⅓%
Wrightsville, Hatfield Pattern.....80%

Sliding Shutter—

Reading list.....70&10@75%
R. & E. list.....33⅓%
Sargent's list.....50&10&10%

Shells— Shells, Empty—

Brass Shells, Empty:
First quality, all gauges.....60&5%
Climax, Club, Rival, 10 and 12 gauge.. 65&5%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Smokeless 10, 12, 16 and 20 gauge. 33⅓&10%
Blue Rival, New Climax, Primrose Club, Yellow Rival, 10, 12, 16 and 20 gauge.....15%
Climax Club, League, Rival, 16, 16 and 20 gauge ($7.50 list).....20&5%
Climax Club, League, Rival 10 and 12 gauge.....25&5%
Defiance, High Base, New Victor, Nitro, Repeater, 10, 12, 16 and 20 gauge.....15%
Trap and Metal Lined, 10, 12, 16 and 20 gauge.....33⅓&10&5%

Shells, Loaded—

Loaded with Black Powder.....50&5%
Loaded with Smokeless Powder, medium grade.....50¢10&5%
Loaded with Smokeless Powder, high grade.....50¢10¢10&5%

Shoes, Horse, Mule, &c.—

F. o. b., Pittsburg.
Iron.....*per keg $3.50*
Steel.....*per keg 3.25*
Burden's, all sizes, ₱ keg.....$3.60

Shot—

Drop, up to B, 25-lb. bag ...$1.40@1.50
Drop, B and larger, per 25-lb. bag.. $1.65@1.75
Buck, 25-lb. bag.....$1.65@1.75
Chilled, 25 lb. bag.....$1.45@1.55
Dust Shot, 25 lb. bag.....$1.90@2.00
Tatham's Chilled.....$1.75

NOTE.—*There is some irregularity in prices and jobbers often undersell the manufacturers.*

Shovels and Spades—

No. 2, Polished, Sq. or Rd. Point, D or L Handle:

	A1, 1st Grade.	*B1, 2d Grade*
Plain Back....	*$10 50*	*$9 60*
Strap Back....	*9.90*	*9 00*
Cleveland Pat'n	*10.20*	*9.30*

	C5, 3d Grade.	*D5, 4th Grade*
Plain Back....	*$8.70*	*$8.10*
Strap Back....	*8.10*	*7.50*
Cleveland Pat'n	*8.40*	*7.80*

All other sizes add 30c doz.
Black deduct 30c doz.

Note.—The above are the regular Association prices to small retailers, but our

When shaded by jobbers $0.50@1.00, and Common, Plain Back Shovels are generally sold by jobbers at $6.75.

Sieves and Sifters—

Hunter's Imitation...gro. $9.50@10.00
Buffalo Metallic Blued, S. S. & Co., ₱ gr.:

14&16	16&18	18&20
$12.90	$13.80	$15.00

F. J. Meyers' Mfg. Co.:

Eclipse...₱ gr. $9.25
Excelsior...₱ gr. $10.35
Hunter's Genuine...₱ gr. $12.50
No Name, Hunter's...₱ gr. $11.50
Standard...₱ gr. $10.35
Baker (Barler's Pat.) Flour Sifters, ₱ doz., $2.00...90%

Sieves, Tin Rim—

Per dozen.

Mesh	14	16	18	20
Black, full size	$0.95	.98	1.00	1.10
Plated, full size	$1.05	1.08	1.10	1.20
Black, scant	$0.78	.80	.83	.85

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.

Mesh 18, Nested, doz...$0.65@0.75
Mesh 20, Nested, doz...75@ .85
Mesh 24, Nested, doz...90@1.00

Sinks—

Cast Iron—

Standard list...65@65&10%
NOTE.—*There is not entire uniformity in lists used by jobbers.*

Wrought Steel—

New Era, Galv'd and Enameled...70&5%
New Era, Painted...60&10%
L. & G. Mfg. Co., Galvanized...50%
L. & G. Mfg Co., Enameled...40%

Skeins, Wagon—

Cast Iron...70@10@75%
Malleable Iron...40@10@50%
Steel...40@40&10%

Slates—

"D" Slates...40@10@50%
Unexcelled Noiseless Slates.60@10@10@10@60@10@10@10@10@10%
Wire Bound...35@40@5%
Double Slates, add $1 case, net.

Slaw Cutters—See *Cutters.*

Slicers, Vegetable—

Sterling ₱ 2.00...33⅓%

Snaps, Harness—

German...40@40@10%

Covert Mfg. Co.:

Derby...35&2%
High Grade...45&2%
Jockey...40&2%
Trojan...45&2%
Yankee...35&2%
Yankee, Roller...30&2%

Covert's Saddlery Works:

Crown...60%
German...60%
Model...60%
Triumph...60%

W. & E. T. Fitch Co.:

Bristol...40&10%
Empire...50&5%
German...40%
National...50&5%
Perfect...45%
Clipper...50&5%
Champion...40%
Security...40%
Victor...60&5%

Oneida Community:

Solid Steel...65@65&10%
Solid Swivel...65&10@65&10&10%

Sargent's Patent Guarded...66⅔&10%

Snaths—

Scythe...45@5&5%

Snips, Tinners'—See *Shears.*

Soldering Irons—

See *Irons, Soldering.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Silver Plated—

Good Quality...50@10@60@10@5%
Cheap...60@60@10%

International Silver Co.:

1847 Rogers Bros...40&10%
Rogers & Bro., William Rogers Eagle Brand, and Rogers & Hamilton.50&10%
Anchor, Rogers Brand...60%
Wm. Rogers & Son...60&10%

Simeon L. & Geo. H. Rogers Co.:

Silver Plated Flat Ware...60%
No. 77 Silver Plated Ware...60&10%

Miscellaneous—

German Silver...60@10@60@10@10%
Simeon L. & Geo. H. Rogers Co.:
German or Nickel Silver, Special list 1. &10%

Tinned Iron—

Teas...per gro. 45@5.0c
Tables...per gro. 90c@$1.00

Springs—

Door—

Gem (Coil)...30%
Star (Coil)...30%
Torrey's Rod, 30 in....₱ doz. $1.10@1.25
Victor (Coil)...50&10&10%

Carriage, Wagon, &c.

Factory Shipments.

1¼ in and wider...Blk.	Hf. Brt.	Brt.
5½	5¾	6c lb

Sprinklers, Lawn—

Enterprise...25@20%
Philadelphia No. 1, ₱ doz. $13; No. 2, $15; No. 3, $24...30%

Squares—

Nickel plated...
Steel and Iron...
List Jan. 5, 1900
...70@10@75%
Rosewood Hdl Try Square and T-Bevels...60@10@10@70%
Iron Hdl. Try Squares and T-Bevels, 40@10@40@10@10%
Disston's Try Sq. and T-Bevels...60&10%
Winterbottom's Try and Miter...50&10%

Squeezers—

Lemon—

Wood, Common, gro., No. 0, $5.25 @$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap...doz. $2.00@2.75
Good Grade...doz. $3.00@3.50
Tinned Iron...doz. $0.75@1.25
Iron, Porcelain Lined doz. $2.90@3.25
Jennings' Star...₱ doz. $1.85@1.90

Staples—

Barbed Blind...lb. 7@7¼c
Electricians', Association list...80@10&10&10%
Fence Staples, same price as Barbed Wire. See Trade Report.
Poultry Netting, Staples...per lb.. 3¼@3½c

Grand Crossing Tack Co.'s list...80&10%

Steels, Butchers'—

Dick's...30%
Foster Bros'...30%
C. & A. Hoffmann's...40%

Steelyards...25@25&10%

Stocks and Dies—

Blacksmiths'...40@40&10%
Gardner Die Stocks No. 1...50%
Gardner Die Stocks, larger sizes...40%
Green River...25%
Lightning Screw Plate...25%
Little Giant...25%
Reece's New Screw Plates...25@30%
Curtis Reversible Ratchet Die Stock.25%

Stone—

Scythe Stones—

Chicago Wheel & Mfg. Co:
Gem Corundum, 10 inch, $3.00 per gro., 12 inch, $10.80
Pike Mfg. Co. 1901 list:

Black Diamond S. S.	₱ gro.	$12.00
Lamoille S. S.	₱ gro.	$11.00
White Mountain S. S.	₱ gro.	$9.00
Green Mountain S. S.	₱ gro.	$6.00
Extra Indian Pond S. S.	₱ gro.	$7.50
No. 1 Indian Pond S. S.	₱ gro.	$7.00
No. 2 Indian Pond S. S.	₱ gro.	$4.50
Leader Red End S. S.	₱ gro	$4.50
Balance of 1901 list		33⅓%

Oil Stones, &c.

Chicago Wheel & Mfg. Co., 1901 list:

Gem Corundum Oil, Double Grit		50%
Gem Corundum Axe, Single or Double Grit		55%
Gem Corundum Slips		55%
Gem Corundum Razor Hones		33⅓%

Pike Mfg. Co. 1901 list:

Arkansas Stone, No. 1, 3 to 5 in.	₱ gro.	$2.30
Arkansas Stone, No. 1, 5 to 6 in.		$3.50
Arkansas Slips No. 1		$4.00
Lily White Washita 4 to 8 in.		60¢
Rosy Red Washita, 4 to 8 in.		60¢
Washita Stone, Extra, 4 to 8 in.		50¢
Washita Stone, No. 1, 4 to 8 in.		40¢
Washita Stone, No. 2, 4 to 8 in.		30¢
Lily White Slips		90¢
Rosy Red Slips		90¢
Washita Slips, Extra		80¢
Washita Slips, No. 1		70¢

25%

India Oil Stones (entire list)		25%
Hindostan No. 1, Regular	₱ lb	8¢
Hindostan No. 1 Small	₱ lb	10¢

40%

Axe Stones (all kinds)		40%
Turkey Oil Stones, ex. 5 to 8 in.	₱ lb	80¢
Queer Creek Stones, 4 to 8 in.		30¢
Queer Creek Slips		10¢

33⅓%

Sand Stone		40%
Belgian, German and Swaty Razor Hones		40%
Natural Grit Carving Knife Hones, ₱ doz		$3.00
Quick Edge Pocket Knife Hones, ₱ doz		$3.00
Mounted Kitchen Sand Stone, ₱ doz		$1.50

33⅓%

Tanite Mills:
Emery Oil, ₱ doz. $5.00...50@60%

Stoners—

Cherry—

Enterprise...25@30%

Stops, Bench—

Millers Falls...15&10%
Morrill's...₱ doz., No. 1, $10.00...50&20%
Morrill's, No. 2, $11.00...50&10%

Stops, Window—

Ives' Patent...25&5%

Stove Boards—

See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Strainers, Pump—

Diamond Joe Pump Strainers..per doz. 75¢

Straps, Box—

Cary's Universal, case lots...20&10%

Stretchers, Carpet—

Cast Iron, Steel Points...doz. 55@65c
Socket...doz. $1.75

Strops, Razor—

Smith & Hemenway Co...70%

Stuffers, Sausage—

Enterprise Mfg. Co...25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97...30%

Tacks Brads, &c.—

List Jan. 15, '99.

Carpet Tacks, American 90¢20@...%
American Cut Tacks...90¢20@...%
Swedes Iron Tacks...90¢30@...%
Swedes Upholsterers' Tacks...90¢40@...%
Gimp Tacks...90¢40@...%
Lace Tacks...90¢40@...%
Trimmers' Tacks...90¢20@...%
Looking Glass Tacks...70¢10%
Bill Posters' and Railroad Tack...90¢30@...%
Hungarian Nails...80¢15%
Common and Patent Brads...80¢10%
Trunk and Clout Nails...80¢10%

NOTE.—*The above prices are for Straight Weights.* An extra 5% is given Star Weights** and an extra 10@5% on Standard Weights.****

Miscellaneous—

Double Point Tacks...90¢5 or 7 tens
Steel Wire Brads, R. & E. Mfg. Co.'s list...50¢10@60%

See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co.	30-gal.	$3.90
Emerald, S. S. & Co.	50-gal.	$4.00
Queen City S. S. & Co.,	0-gal.	$3.50
Queen City S. S. & Co.,	60-gal.	$4.25

Tapes, Measuring—

American Asses' Skin...40¢10@50%
Patent Leather...35@35¢5%
Steel...40@40¢5%
Chesterman's...25@25¢5%
Eddy's Steel...40@40¢5%
Eddy's Metallic...33⅓@33⅓&5%
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899...35%
Lufkin's Steel...33⅓@35%
Lufkin's Metallic...30@30&5%

Teeth Harrow—

Steel Harrow Teeth, plain or headed, base per lb...2¼c

Thermometers—

Tin Case...80¢10@80¢10¢5%

Ties, Bale—Steel.

Standard Wire...50¢10¢5%

Ties, Wall—

Cleveland Wire Spring Co.:

Galv. Steel 5-32 x 6½ in.	₱ 1000.	$10.00
Galv. Steel 5-32 x 8½ in.	₱ 1000.	$11.00
Galv. Steel 5-32 x 11½ in.	₱ 000.	$12.00
Galv. Steel 5 32 x 15½ in.	₱ 1000.	$14.00

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco.*

Tools—

Coopers'—

L. & I. J. White...20@20&5%

Saw—

Atkins' Cross Cut Saw Tools...40%
Simonds' Improved...33⅓%
Simonds' Crescent...25%

Ship—

L. & I. J. White...25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Game—

Oneida Pattern...75¢5@75¢10¢5%
Newhouse...45@45&5%
Hawley & Norton...65&5@65&10%
Victor (Oneida Pattern)...75@75&5%
Star (Blake Pattern)...65&10@70&5%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes... 8½@9c
Mouse, Round or Square Wire... doz. $0.85@1.00

American Pattern French Rat and Mouse Traps—
No. 1, Detroit Marty Pattern, ₱ doz. $4.50; in ½ gro. lots, ₱ doz...$4.00
No. 2, Detroit Marty Pattern, ₱ doz. $3.25; in ½ gro. lots, ₱ doz...$3.00
Detroit Marty Pattern Mouse, ₱ doz. $2.00; in ½ gro. lots, ₱ doz.... $1.75
Diamond Joe Mouse Traps...per doz. 60¢
Diamond Joe Rat Traps...per doz. $1.00
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, Each $1.12½; ₱ doz. $12.00
No. 3, Rat, ₱ doz. $6.00; case of 50 $5.25 doz.
No. 3¼, Rat, ₱ doz. $4.75; case of 72 $4.25 doz.
No. 4, Mouse, ₱ doz. $3.50; case of 72 $2.75 doz.
No. 5, Mouse, ₱ doz. $2.75; case of 72 $2.25

Schuyler's Rat Killer, No. 1, ₱ gr. $30.00; No. 2, ₱ gr. $30.00; Mouse, No. 3, $18.00...50%

Fly—

Balloon, Globe or Acme... doz. $1.15@1.35; gro. $10.50@11.00
Harper, Champion or Paragon... doz. $1.25@1.40; gro. $12.00@13 50

Trimmers, Spoke—

Bonney's Nos. 1 and 2...40%

Trowels—

Disston Brick and Pointing...30%
Disston Plastering...25%
Disston "Standard Brand" and Garden Trowels...40%
Never-Break Steel Garden Trowels... gro. $7.00
Peace's Plastering...30%
Rose Brick and Plastering...25&5%
Woodrough & McParlin, Plaistering...25%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list...50%
Daisy Stove Trucks, Improved pattern ₱ doz. $18.50
Model Stove Trucks...₱ doz. $18.50

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	$5.00	5.50	6.00

Galvanized Wash Tubs (S. S. & Co.):

	No. 1	2	3	10	20	30
Per doz.	$5 25	6.00	6.75	6.50	7 25	8.00

Twine—

Binder—

Small lots f. o. b. New York, Philadelphia or Boston.
White Sisal, 500 ft. to lb. per lb...8¼c
Standard, 500 ft. to lb.. per lb....8¼c
Manila, 600 ft. to lb.....per lb...10¼c
Pure Manila, 550 ft. to lb. per lb. 11¼c
For carloads deduct ¼c per lb.

Miscellaneous—

Flax Twine—	BC	B.
No. 9, ¼ and ¼-lb. Balls	22c	24c
No. 12, ¼ and ½-lb. balls	18c	20c
No. 18, ¼ and ½-lb. Balls	16c	18c
No. 24, ¼ and ½-lb. Balls	15½c	17½c
No. 36, ¼ and ½-lb. Balls	15c	17c

Chalk Line, Cotton, ½-lb. Balls... 22@22½c
Cotton Mops, 6, 9, 12 and 15 lb. to doz...7@8c
Cotton Wrapping, 5 Balls to lb ... according to quality...10¼c@17c
American 2-Ply Hemp, ¼ and ½-lb. Balls...12@13c
American 3 Ply Hemp, 1-lb. Balls.. 12@13c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine)...8½c
India 3-Ply Hemp, 1-lb. Balls...8½c
India 3-Ply Hemp, 1½-lb. Balls...7c
2, 3, 4 and 5-Ply Jute, ½-lb. Balls... 9½@10c
Mason Line, Linen, ½-lb. Balls...15c
No. 2½ Mattress, ¼ and ½-lb. Balls.37c
Wool...7c

Vises—

Solid Box...50%

Parallel—

Athol Machine Co.:
Simpson's Adjustable...40%
Standard...40%
Amateur...25%
Bonney's...40%
Fisher & Norris Double Screw...15&10%
Hollands':
Machinists'...40%
Keystone...65&5%
Lewis Tool Co...20&30%
Massey's Perfect...15@20%
Massey's:
Clincher...30@40%
Combination, Quick Adj...40%
Woodworker's...15@20%
Merrill's...20%
Miller's Falls...50&10&10%
Parker's:
Victor...20@25%
Regulars...20@25%
Vulcan's...40@45%
Combination Pipe...55@60%
Prentiss...20@25%
Sargent's...40%
Simpson's Adjustable...40%
Snediker's X. L...30@25%
Stephens'...20@25%
Columbian Hdw. Co...40%

Saw Filers—

Bonney's, No. 1, $13; No. 3, $16...50%
Disston's D 8 Clamp and Guide, ₱ doz. $30...25%
Reading...40&10%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3...45&50%

Miscellaneous—

Bignall & Keeler Combination Pipe Vise...60%

Parker's Combination Pipe:
87 Series...60%
187 Sereis...60&5%
No. 870...40%

Wads—Price Per M.

B. E., 11 up	60c
B. E., 9 and 10	70c
B. E., 8	80c
B. E., 7	80c
P. E., 11 up	$1.00
P. E., 9 and 10	1.25
P. E., 8	1.50
P. E., 7	1.50
Ely's B. E., 11 and larger	$1.70@1.75
Ely's P. E., 12 to 20	$3.00@3.25

Dis. 2&2½%

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Aluminum—

S. S. & Co. Reduced List...40%

Cast Iron, Hollow—

Stove Hollow Ware:
Ground...65%
Unground...70%
White Enameled Ware:
Maslin Kettles...75¢10¢5@80%
Covered Ware:
Tinned and Turned...40¢10@10&10¢5%
Enameled and Plain.50@50¢10¢5%

See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware, list July '99, 33⅓&10%
Granite Ware, list Jan. 1, '94, revised Jan. 2, '95...40&10%
L. & G. Opal Enameled Ware...65%
Second Quality, Granite...70&10&10%
Iron Clad Ware...70&10%
Never Break Enameled...50&5@50&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	6	7	8	9
Each	45c	50c	55c	65c

Steel Hollow Ware.

Avery Spiders & Griddles...65@65&5%
Avery Kettles...60%
Porcelained...50&5@50&10%
Never Break Spiders and Griddles... 65&5%
Never Break Kettles...60%
Solid Steel Spiders & Griddles...65&5%
Solid Steel Kettles...60%
Solid Steel Ware, Enameled...50&5%

Washboards—

Solid Zinc: ₱ doz
Crescent, family size, bent frame..$3.00
Red Star, family size, stationary protector...$3.00
Double Zinc Surface:
Saginaw Globe, family size, stationary protector...$2.65
Cable Cross, family size, stationary protector...$2.90
Single Zinc Surface:
Naiad, family size, open back perforated...$2.40
Saginaw Globe, protector, family size, ventilated back...$2.25
Brass Surface:
Brass King, Single Surface, open back...$3.00
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.00

Washers—

Leather, Axle—

Solid.....85@85&10%
Patent.....85&10@85&20%
Coil: ⅞ 1 1¼ 1¼ *Inch.*
10c 11c 12c 13c *per 100*

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$5.20 4.30 3.00 2.30 2.20
In lots less than one keg add ¼c per lb., 5-lb. boxes add ½c to list.

Cast Washers—

Over ½ inch, barrel lots, per lb.....1¼@1¾c

Washer Cutters—

See *Cutters, Washer.*

Washing Machines—

See *Machines, Washing.*

Water Coolers—

See *Coolers, Water.*

Wedges—

Oil Finish.....lb. $2.90@$3.10c

Weights, Sash—

Per ton, f.o.b. factory....$19.00@$22.50
Some Foundries make price $1@$2 lower.

Well Buckets, Galvanized

See *Pails, Galvanized.*

Wheels Well—

8-in., $1.65@1.75; 10-in., $2.00@2.10; 12-in., $2.50@2.75; 14-in., $3.25@3.40

Wire and Wire Goods—

Brt. and Ann., 6 to 9.70&10@70&10&5%
Brt. and Ann., 10 to 13.72½@72½&10%
Brt. and Ann., 19 to 26.75&7½@75&10%
Brt. and Ann., 27 to 36.....
.....75&10@75&10&5%
Cop'd and Galv., 6 to 9.....70@70&5%
Cop'd and Galv., 10 to 13.....
.....70&5@70&10%
Cop'd and Galv., 19 to 26.....
.....75@75&5%
Cop'd and Galv., 27 to 36.....
.....75&5@75&10%
Tinned, 6 to 14.....75@75&5%
Tinned, 15 to 18.....70&5@70&10%
Tinned, 19 to 26.....70@70&5%
Tinned, 27 to 36.....65&10@70%
Annealed Wire on Spools..70&5@70
&10%
Brass and Copper Wire on Spools..
60&5@50&10%
Brass, list Feb. 26, '98.....35%
Copper, list Feb. 26, '98.....15%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to $. 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—

List April 1, 1901.....35&10@...%

Wire Cloth and Netting—

Galvanized Wire Netting...35@35&5%
Painted Screen Cloth per 100 ft.....
$1.00@1.10

Light Hardware Grade:
8-18 Mesh, Plain (8c. list) sq. ft...
1¼@1¾c
8-18 Mesh, Galv. (8c. list) sq. ft...
2¼@2¾c

Wire Barb—See *Trade Report.*

Wire, Rope—See *Rope, Wire.*

Wrenches—

Agricultural.....70&10@75&5%
Case lots.....75&10%
Acme.....60&10%
Alligator.....70%
Baxter's S.....60&10%
Bull Dog.....70%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable S Pipe.....10%
Brigg's Pattern.....30&10%
Combination Black.....40&5%
Combination Bright.....40%
Cylinder or Gas Pipe.....75%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....55%
Bindley Automatic.....80%
Boardman's.....33⅓%
Coes' Genuine.....40&10&5&5%
Coes' "Mechanics'".....40&10&10&5&5%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Gem Pocket.....30%
Hercules.....70%
Knife Handle, Machinists' (W. & B.):
Case lots.....50&10%
Less than case lots.....50&5%
Improved Pipe (W. & B.).....60%
Solid Handles, P.S. & W.....50@50&10%
Triumph.....60&10%

Wrought Goods—

Staples, Hooks, &c., list March 17 '98.....85&25@70%

Yokes, Neck—

Covert Saddlery Works, Trimmed.60&5%
Covert Saddlery Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers & Freighters'.. list net

Zinc—

Sheet.....lb 6¼c@7c

PAINTS, OILS AND COLORS.—Wholesale Prices.

White Lead, Zinc, &c.

Lead, Foreign white, in Oil.... 7¾@ 9¾
Lead, American White, in Oil:
Lots of 500 ℔ or over.....@ 6¼
Lots less than 500 ℔.....@ 7
Lead, White, in oil, 25 ℔ tin pails, add to keg price.....@ ¼
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....@ 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price..@ 1¼
Lead White, Dry in bbls.....5¾@ 6
Lead, American. Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry.....₩ ℔ 4½@ 4¾
Zinc, Paris, Red Seal, dry.....@ 8½
Zinc, Paris, Green Seal, dry.....@ 9½
Zinc, Antwerp Red Seal, dry.....@ 6½
Zinc, Antwerp, Green seal, dry..@ 7¾
Zinc, V. M. French, in Poppy Oil, Green Seal:
Lots of 1 ton and over.....12 @12¼
Lots of less than 1 ton.....12¼@12¾
Zinc, V. M French, in Poppy Oil, Red Seal:
Lots of 1 ton and over.....10¾@11¼
Lots of less than 1 ton.....11@11¾
DISCOUNTS.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors.

Black, Carbon.....₩ ℔ 8 @20
Black, Drop, Amer.....4 @ 7
Black, Drop, Eng.....7 @11
Black, Ivory.....12 @21
Lamp, Com.....4½@ 6
Blue, Celestial.....₩ ℔ 4 @ 6
Blue, Chinese.....30 @35
Blue, Prussian.....28 @34
Blue, Ultramarine.....4 @20
Brown, Spanish.....1@ 1
Brown, Vandyke, Amer.....1½@ 2½
Brown, Vandyke, Foreign.....2½@ 3½
Carmine, No. 40.....₩ ℔$2.05@2.75
Green, Chrome, ordinary.....5 @ 6½
Green, Chrome, pure.....16 @20
Lead, Red, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over.....@ 6
Lots less than 500 ℔.....@ 6½
Litharge, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over.....@ 6
Lots less than 500 ℔.....@ 6½
Ocher, French Washed.....1¾@ 1¾
Ocher, Dutch Washed.....4½@ 5
Ocher, American....₩ ton $10.00@15.00
Orange Mineral, English..₩ ℔ 8½@11¼
Orange Mineral, French.....11 3-16@11¼
Orange Mineral, German.....8½@ 9¼
Orange Mineral, American.....8 @ 8½
Red, Indian, English.....4½@ 8½
Red, Indian, American.....8 @ 9½
Red, Turkey, English.....4 @ 6
Red, Tuscan, English.....7 @10
Red, Venetian, Amer.₩ 100 ℔. 80@1.75
Red Venetian, English, ₩100 ℔ 1.80@3.00
Sienna, Italian, Burnt and Powdered.....₩ ℔ 3½@ 7½
Sienna, Ital., Raw, Powd.....3½@ 7½
Sienna, American, Raw.....1½@ 2
Sienna, American, Burnt and Powdered.....₩ ℔ 1½@ 2
Talc, French.....₩ 100 ℔ $1.25 @1.50
Talc, American.....90 @1.10
Terra Alba, French, ₩ 100 ℔ . 95 @1.00
Terra Alba, English.....95 @1.00
Terra Alba, American No. 1....65 @85
Terra Alba, American No. 2....45 @50
Umber, Turkey, Bnt. & Pow.₩ ℔ 2½@ 3½
Umber, Turkey, Raw & Powd. 2½@ 3½
Umber, Bnt. Amer.....1½@ 2
Umber, Raw, Amer.....1½@ 2
Yellow, Chrome.....10½@25
Vermilion, American Lead.....10 @40
Vermilion, Quicksilver, bulk.. @70
Vermilion, Quicksilver, bags..@71
Vermilion, English, Import..80 @95
Vermilion, Chinese.....$1.05@1.20

Colors in Oil.

Black, Lampblack.....19 @14
Blue, Chinese.....36 @40
Blue, Prussian.....32 @36
Blue, Ultramarine.....13 @16
Brown, Vandyke.....9½@13
Green, Chrome.....10 @12
Green, Paris.....@24
Sienna, Raw.....10 @13
Sienna, Burnt.....10 @13
Umber, Raw.....9½@13
Umber, Burnt.....9½@13

Miscellaneous.

Barytes, Foreign, ₩ ton....$19.00@21.00
Barytes, Amer. floated.....19.00@30.00
Barytes, Crude, No. 1.....9.00@10.00
Chalk, in bulk.....₩ ton 2.50@ 2.75
Chalk, in bbls.....₩ 100 ℔ ...@ 35
China Clay, English..₩ ton 13.00@17.50
Cobalt, Oxide.....₩ 100 ℔ 2.30@ 2.50
Whiting, Common.₩ 100 ℔. .40@ .60
Whiting, Gilders.....45½@ .65
Whiting, extra Gilders'.... .55@ .68

Putty.

In bulk.....$1.95
In bladders.....2.25
In cans, 12 ℔ to 25 ℔.....2.25
In cans, 1 ℔ to 5 ℔.....2.25

Spirits Turpentine.

In Southern bbls.....36½@37 ¢
In machine bbls.....37 @37½¢

Glue.

Low Grade.....₩ ℔ 9 @12
Cabinet.....11½@16
Medium White.....14½@16¼
Extra White.....18 @23
French.....12 @40
Irish.....13½@16

Animal, Fish and Vegetable Oils.

Linseed, City, raw.....₩ gal. 82@83
Linseed, City, boiled.....84 @85
Linseed, State and West'n, raw 80 @81
Linseed, raw Calcutta seed.....@85
Lard, Prime.....69 @70
Lard, Extra No. 1.....60 @59
Lard, No. 1.....43 @44
Cotton-seed, Crude.....@ ..
Cotton-seed, Summer Yellow, prime.....39 @40
Cotton-seed Summer Yellow, off grades.....38 @38½
Sperm, Crude.....@ ..
Sperm, Natural Spring.....@ ..
Sperm, Bleached Spring.....@ ..
Sperm, Natural Winter.....61 @62
Sperm, Bleached Winter.....64 @65
Whale, Crude.....@ ..
Whale, Natural Winter.....@45
Whale, Bleached Winter.....@47
Menhaden, Crude, Sound.....24 @25
Menhaden, Light Strained.....30 @31
Menhaden, Bleached Winter..32 @33
Menhaden, Ex Bleached Winter 35 @36
Tallow, prime.....52 @53
Cocoanut, Ceylon.....57½@ 6
Cocoanut, Cochin.....6¾@ 7
Cod, Domestic.....32 @33
Cod, Newfoundland.....34 @35
Red Elaine.....34 @35
Red Saponified.....₩ ℔ 4½@ 5
Olive, Italian, bbls.....62½@ 65
Neatsfoot, prime.....52 @54
Palm, prime, Lagos.....₩ ℔ 5½@5¾

Mineral Oils.

Black, 30 gravity, 25@30 cold test.....₩ gal. 9½@ 9¾
Black, 29 gravity, 15 cold test. 10¾@10¾
Black, summer.....8¾@ 9¼
Cylinder, light filtered.....14½@17½
Cylinder, dark filtered.....11½@15¾
Paraffine, 903-907 gravity.....12¾@13¾
Paraffine, 903 gravity.....11¾@11¾
Paraffine, 883 gravity.....9½@10
Paraffine, red, No. 1.....12¾@13¾
In small lots ¼¢ advance.

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CURRENT METAL PRICES.

JULY 24, 1901.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.6¢ ₩ ℔; Square, 0.8¢ ₩ ℔

1 to 1⅞ in. round and square	₩ ℔ 1.75@1.85¢
1¼ to 4 in. x ⅜ to 1 in.	
Refined Iron:	
1 to 1⅞ in. round and square	₩ ℔ 1.85@1.95¢
1¼ to 4 in. x ⅜ to 1 in.	
1⅛ to 4 in. x ¼ to 5-16	₩ ℔ 2.00@2.05¢
Rods—¾ and 11-16 round and square	₩ ℔ 2.20@2.30¢

Angles:	Cts ₩ ℔
3 in. x ¼ in. and larger	2.20¢
3 to 3½ in. x 3-16 in.	2.20¢
1¼ to 3 in. x ⅛ in.	2.30¢
1¼ to 2¾ in. x 3-16 in. and thicker	2.10¢
1 to 1¼ in. x 3-16 in.	2.20¢
1 to 1¼ x ⅛ in.	2.30¢
⅞ x ⅛ in.	2.40¢
¾ x ⅛ in.	2.50¢
⅝ x ⅛ in.	3.50¢
½ x 3-32 in.	4.00¢
Tees:	
1 in.	2.60¢
1¼ in.	2.40¢
1¼ in. and larger	2.30¢
Beams	2.25¢
Channels, 3 in. and larger	2.25¢
Bands—1¼ to 6 x 3-16 to No. 8	₩ ℔ 2.20¢
"Burden's Best" iron, base price	₩ ℔ 3.15¢
Burden's "H. B & S. Iron, base price	₩ ℔ 2.95¢
"Ulster"	₩ ℔ 3.50¢
Norway Bars	3.75@4.25¢
Norway Shapes	4.00@4.50¢

Merchant Steel from Store—

	per ℔
Bessemer Machinery	1.90 to 1.95¢
Toe Calk, Tire and Sleigh Shoe	2.00@2.50¢
Best Cast Steel, base price in small lots	7½¢
Best Cast Steel Machinery, base price in small lots	6 ¢

Soft Steel Sheets—

¼ inch	2.20¢	No. 14	2.70¢
3-16 inch	2.30¢	No. 16	2.90¢
No. 8	2.30¢	No. 18	3.10¢
No. 10	2.50¢	No. 20	3.40¢
No. 12	2.60¢	No. 22	3.50¢

Sheet Iron from Store.

Black.

	One Pass, C. R. Soft Steel.	R. G. Cleaned.
Nos. 14 to 16	₩ ℔, 3.50¢	3.55¢
Nos. 18 to 21	₩ ℔, 3.60¢	3.65¢
Nos. 22 to 24	₩ ℔, 3.70¢	3.75¢
Nos. 25 and 26	₩ ℔, 3.80¢	3.85¢
No. 27	₩ ℔, 3.90¢	3.95¢
No. 28	₩ ℔, 4.00¢	4.05¢

Russia, Planished, &c.

Genuine Russia, according to assortment ₩ ℔ 10½¢

Patent Planished ₩ ℔ A, 9½¢; B, 8½¢, net.

Galvanized.

	B. B.	B.
Nos. 10 to 16	₩ ℔, 12¢	11¢
Nos. 17 to 21	₩ ℔, 13¢	12¢
Nos. 22 to 24	₩ ℔, 14¢	13¢
Nos. 25 to 26	₩ ℔, 15¢	14¢
No. 27	₩ ℔, 16¢	15¢
No. 28	₩ ℔, 17¢	16¢
No. 29	₩ ℔, 19¢	18¢
No. 30	₩ ℔, 21¢	20¢

26 in. 1¢ ₩ ℔ higher.

Foreign Steel from Store—

Best Cast	₩ ℔ 15 ¢
Extra Cast	₩ ℔ 18 @ 20 ¢
Swaged, Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 15 ¢
Blister, 1st quality	₩ ℔ 13 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 15 ¢
2d quality	₩ ℔ 14 ¢
3d quality	₩ ℔ 12 ¢
R. Mushet's "Special"	₩ ℔ 46 ¢
" " " Annealed	₩ ℔ 75 ¢
" " "Titanic"	₩ ℔ 19 ¢
Hobson's Choice XX Extra Best	₩ ℔ 35 ¢
Jessop Self Hardening	₩ ℔ 45 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson's "Soho" Special Self-Hardening	₩ ℔ 43 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free.

	Per ℔
Banca, Pigs	28¾@29 ¢
Straits, Pigs	28½@28¾¢
Straits in Bars	29½@29¾¢

Tin Plates—

American Charcoal Plates.

Calland Grade:	
IC, 14 x 20	$7.25
IX, 14 x 20	8.75
Melyn Grade:	
IC, 14 x 20	6.75
IX, 14 x 20	8.25
Allaway Grade:	
IC, 14 x 20	5.75
IX, 14 x 20	6.85

American Coke Plates—Bessemer—

IC, 14 x 20 108 ℔	$5.25
IX, 14 x 20	6.50
IXX 14 x 20	7.75

American Terne Plates—

IC, 20 x 28	$10.00
IX, 20 x 28	11.75

Tin Boiler Plates, American—

IXX, 14 x 28 112 sheets	$13.50
IXX, 14 x 28 112 sheets	14.50
IXX, 14 x 31 112 sheets	16.00

Copper—

Duty: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₩ lb.

Ingot—

Lake	17¼@17¼¢
Ansonia grade Casting	16¾@17 ¢

Sheet and Bolt—

January 19, 1900. Net.

Prices, in cents per pound. Sheet 30 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 9lb. sheet, 30 x 60 and heavier.	32 oz. to 64oz. 25 to 30 lb.	24 oz. to 32 oz. 18¾ to 25 lb.	16 oz. to 24 oz. 12½ to 18¾ lb.	14 oz. and 15 oz. 11 to 12½ lb.	12 oz. and 13 oz. 9½ to 11 lb.	10 oz. and 11 oz. 7¾ to 9½ lb.	8 oz. and 9 oz. 6¼ to 7¾ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	22	21	21	21	22	23	24	27	30
30	96	72	22	21	21	21	22	24	27	30	
30	.....	96	22	21	21	21	23	27			
36	72	.....	22	21	21	21	23	25	28	31	
36	96	72	22	21	21	21	23	25	30		
36	120	96	22	21	21	21	24				
36	.....	120	22	21	22	23					
48	72	.....	22	21	22	23	25	28	31		
48	96	72	22	21	22	24	26	29			
48	120	96	22	21	23	25	29				
48	.....	120	22	22	24	27					
60	72	.....	22	22	24	27	27	32			
60	96	72	22	21	23	25	30				
60	120	96	22	22	24	27					
60	.....	120	22	23	25	29					
72	96	.....	22	22	24	29					
72	144	96	22	23	26	31					
72	.....	144	22	24	29						
108	120	.....	22	24	30						
108 wider than 108	.....	120	24	25							
	144	.....	25	27							
	.....	144	26	29							

Rolled Round Copper, ¾ inch diameter and over, ₩ ℔ 2¢.

Circles, Segments and Pattern Sheets, 3¢ ₩ ℔ advance over price of Sheet Copper required to cut them from.

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ ℔ over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 oz. ₩ square foot, 2¢ ₩ ℔ over the foregoing prices.

All Polished Copper, 20 in. wide and under, 1¢ ₩ ℔ advance over the price for Cold Rolled Copper.

All Polished Copper, over 20 in. wide, 2¢ ₩ ℔ advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₩ ℔ more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₩ ℔	23¢
12 oz. and up to 14 oz. to square foot, ₩ ℔	28¢
10 oz. and up to 12 oz., ₩ ℔	2¢
Lighter than 10 oz., ₩ ℔	31¢

Circles less than 8 in. diameter, 3¢ ₩ ℔ additional.

Circles over 13 in. diameter are not classed as Copper Bottoms.

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.

List March 2, 1900.

Nos.	0000 to 8 Base	9 and 10		11 and 12
	⅛¢			¼¢ ₩ ℔ adv.
Nos.	13	14	15	16
	¼¢	⅜¢	1¢	1¼¢ ₩ ℔ adv.
Nos.	17	18	19	20
	1¾¢	2¢	2¼¢	2½¢ ₩ ℔ adv.

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.

Feb. 6, 1899. Net. Outside Diameter.

Stubs' W.G.	B. & S. W.G.	¼	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1¼	1½
4-11	9	...	.....	...	.....	33	31	30	29	28	27	25	24
12	10	...	.....	37	35	33	31	30	29	28	27	25	24
13	11	...	.....	37	35	33	31	30	29	28	27	25	24
14	12	...	41	37	35	33	31	30	29	28	27	25	24
15	13	...	42	38	36	33	32	31	30	30	28	26	25
16	14	...	43	39	37	34	33	32	31	30	29	26	25
17	15	...	44	40	38	35	34	33	32	31	30	27	26
18	16	61	45	42	39	36	35	34	32	31	30	28	27
19	17	60	47	43	40	37	36	35	34	33	32	30	29
20	18-19	64	49	44	41	39	38	37	36	35	34	32	31
21	20	66	51	46	43	41	40	39	38	37	36	35	34
22	21	71	56	48	44	43	41	40	39	38	37	37	36
23	22	76	61	50	46	44	43	42	41	40	39	39	39
24	23	81	66	53	48	46	45	44	43	41	40	40	41
25	24	86	71	56	51	49	47	46	45	43	43	44	45

Copper Bronze and Gilding Tube, 3¢ ₩ ℔ additional

Iron Pipe Sizes—Brass

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6 inch
36	32	30	27	21	21	21	21	21	21	21	26	23	25	27	28¢ ₩ ℔

Copper, Bronze or Gilding Tubes, 3¢ ₩ ℔ additional

Brazed Brass Tubing.

(To No. 19, *inclusive.*) Feb. 26 1898

Brown & Sharpe's gauge standard.

	Per ℔.
Plain Round Tube, ⅛ in. up to 2 in.	$0.35
" " ¼ " " ¼ "	.38
" " ⅜ " " ⅜ "	.39
" " ½ " " ½ "	.41
" " 5-16 " " ⅝ "	.48
" " ¾ " 5-16 "	.65
" " 3-16 " ¾ "	1.00
" " ⅛ " 3-16 "	1.50
Smaller than ⅛ inch	Special
3 inch and larger	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50

Bronze and Copper, advance on Brass List, 3 cents.

Discount from list 5%.....35%

Roll and Sheet Brass—

(*Brown & Sharpe Standard Gauge.*)

Common High Brass	in.	in.	in.	in.	in.	in.	in.	in.	in.
Wider than	2	12	14	16	18	20	22	24	
and including	12	14	16	18	20	22	24	26	
To No. 20 inclusive	.22	.23	.25	.27	.29	.31	.33	.36	
Nos. 21 22, 23 and 24	.22	.24	.26	.28	.30	.32	.34	.37	
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38	
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.36	.39	

Common High Brass	in.	in.	in.	in.	in.	in.	in.	in.	in.
Wider than	26	28	30	32	34	36	38	40	
and including	28	30	32	34	36	38	40		
To No. 20, inclusive	.39	.42	.46	.50	.55	.60	.65	*	
Nos. 21, 22, 23 and 24	.40	.43	.47	.51	.56	.61	.68		
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71		
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75		

*Special prices not less than 80 cents.

Add 1¢ ₩ ℔ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List 20%

Wire in Coils. List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gilt bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23½	.27½	.28
No. 17 and No. 18	.24	.28	.29
No. 19 and No. 20	.25	.29	.30
No. 21	.26	.30	.31
No. 22	.27	.31	.32
No. 23	.28	.32	.33
No. 24	.30	.34	.35
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.53	.58
No. 31	.51	.55	.67
No. 32	.55	.59	.73
No. 33	.59	.63	.84
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 20%; Copper Wire, Net. List November 16, 98.

Spring Wire, 2¢ ₩ ℔ advance.

Tobin Bronze—

Straight, but not turned, Rods, ⅝ to 3 in. diameter, ₩ ℔, net. 20¢

Finished Piston Rods, ⅝ to 2½ in. diameter, ₩ ℔ net. 21¢

Other sizes and extreme lengths, special prices.

Spelter—

Duty: In Blocks or Pigs, 1¢ ₩ ℔

Western Spelter 4.45@4¢

Zinc.

Duty: Sheet, 2¢ ₩ ℔.

600 ℔ casks 6¾¢ | Per ℔ 7¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₩ ℔. Pipe and Sheets, 3½¢ ₩ ℔.

American Pig	4.60@4.62½
Bar	5½@5¾
Pipe	6¼@ 20%
Tin Lined Pipe	13¼¢ 20%
Block Tin Pipe	40 ¢ 20%
Sheet Lead, full rolls	7¼¢ 20%
Sheet Lead, cut	7¾¢ 20%

Old Lead in exchange, 4½¢ ₩ ℔.

Solder.

½ & ⅓, guaranteed 18½@19

No. 1 15 @17

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₩ lb.

Cookson	₩ ℔ 10¼@11
Hallett's	₩ ℔ 8¾@9
U. S.	₩ ℔ 8¾@9

Aluminum—

Duty: Crude, 8¢ ₩ ℔. Plates, Sheets, Bars and Rods 13¢ ₩ ℔.

No. 1 Aluminum (guaranteed over 99% pure), in ingots for remelting:	
Small lots	₩ ℔ 33
100-℔ lots	₩ ℔ 32
No. 2 Aluminum (guaranteed to be over 99 % pure), in ingots for remelting:	
Small lots	₩ ℔ 30
100-℔ lots	₩ ℔ 29

Aluminum Sheet, B. & S. gauge. 50 ℔ or more

Wider than	6-in.	14-in.	24-in.
And including	14-in.	24-in.	30-in.
	₩ ℔.	₩ ℔.	₩ ℔.
Nos. 13 to 19	$0.42	$0.44	$0.46
No. 20	.44	.46	.48
Nos. 21 to 23	.46	.48	.50
No. 24	.46	.50	.52
No. 25	.47	.51	.53
No. 26	.47	.54	.56
No. 27	.48	.57	.59
No. 28	.48	.57	.59
No. 29	.49	.60	.62
No. 30	.50	.64	.66

Note.—Lots of less than 50 ℔ 5¢ ₩ ℔ extra.

Aluminum Wire, B. & S. Gauge.

Larger than No. 9	₩ ℔ 40¢	No. 15	₩ ℔ 45
No. 9 to No. 10	₩ ℔ 40½¢	No. 17	₩ ℔ 50
No. 11	₩ ℔ 41 ¢	No. 18	₩ ℔ 56
No 12	₩ ℔ 41½¢	No. 19	₩ ℔ 60
No. 13	₩ ℔ 42 ¢	No. 20	₩ ℔ 65
No 14	₩ ℔ 43½¢	No. 21	₩ ℔ 80

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper	₩ ℔ 15
Light and Tinned Copper	₩ ℔ 13
Heavy Brass	₩ ℔ 10
Light Brass	₩ ℔ 8
Lead	₩ ℔ 4
Tea Lead	₩ ℔ 3
Zinc	₩ ℔ 2
No. 1 Pewter	₩ ℔ 18
No. 2 Pewter	₩ ℔ 15
Tin Plate Scrap	₩ ton $6
Wrought Scrap Iron	₩ gross ton $10.50
Heavy Cast Scrap	₩ gross ton $10.00
Stove Plate Scrap	₩ gross ton $7.00
Burnt Iron	₩ gross ton $5.00